CALIFORNIA

OIL WORLD

and Petroleum Industry

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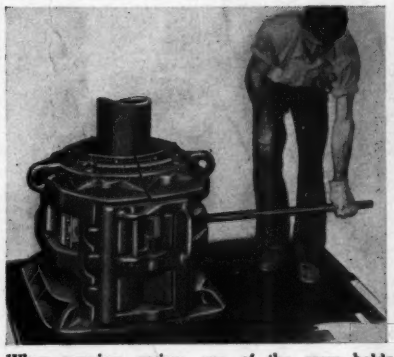
TWICE MONTHLY
FIRST ISSUE
AUGUST, 1940

Vol. 33
No. 15
Whole
No. 1566

The BJ CASING SPIDER brings to the Oil Industry new standards of speed and safety in setting casing strings of any length. Crews everywhere approve it on sight because . . . IT GRIPS INSTANTLY and POSITIVELY — IT OPERATES RAPIDLY and EASILY — IT IS READILY REMOVED BY MERELY OPENING THE DOOR.

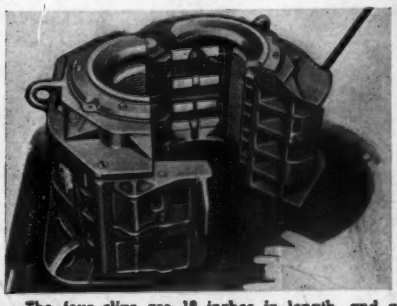
EXTRA
GOOD
EXTRA
SAFE
EXTRA
VALUE

The "shock absorbing" feature of the new BJ KELLY BUSHING is a rubber cushion which fits into the corrugated inner bore of the body and absorbs the shock as the Kelly moves downward smoothly and evenly through anti-friction liners.



When running casing, one of the crew holds the lever in lowered position so that the four slips are retracted and not engaged on the pipe. When the lever is in elevated position, the slips automatically move into gripping position and the door latch cannot be opened while the slips are supporting the casing.

The alloy steel body is completely heat treated and is of split-type with a strong hinge pin joining the two halves in the rear. A massive stirrup-type latch fits over large lugs to secure these halves in front. This view shows top guide plate which prevents the casing from dragging against the face of the slips while it is being run-in the well.



The four slips are 18 inches in length, and are designed with flat backs to provide instantaneous, uniform gripping action regardless of their vertical position in the body. To change from one size of slips to another only one bolt in each slip is removed — no other operating mechanism is disturbed — and the desired slips are quickly bolted in position.

Even with a new cat-head and a new rope, fouling usually occurs between the first and second wraps of the rope around the cat-head — and serious accidents follow.

The slanted BJ ELLIOTT ROPE GUARD prevents tangling or fouling of the cat-line as it wraps around the cat-head — thus preventing accidents of personal injuries, and safely speeding up operations.

The BJ Elliott Rope Guard separates the first and second wraps of the line, and prevents tangling at this danger point. By speeding up the use of Making, Breaking and Spinning Ropes, it soon pays for itself in savings of time. This safety device is sturdily made of alloy steel, runs almost noiselessly, and is made for either the driller's side or the cat-head man's side of any drilling rig.

In the solid, one - piece body is fitted an oil resistant rubber cushion with corrugations to match those in the bore of the body. The slips have corrugated metal backs which fit against the rubber cushion and take the driving torque. Radial thrust is taken on metal bearing surfaces at the top and bottom of the body. The sectional view (above) shows (1) the body; (2) the cushion; (3) the slips; (4) the liners; with square Kelly in place.

Above are seen the corrugated "shock absorbing" rubber cushion, and (at right) the matching corrugations on back of slip; (center) anti-friction liner which takes all the wear, and is reversible, top to bottom. Even old, scarred Kellys are smoothed and polished as they move through these liners, an even, frictionless feed is assured as drilling continues.

BJ DRILLING TOOLS

EQUIPMENT SUPPLIERS MEMBER ASSOCIATION

BYRON JACKSON CO.
LOS ANGELES
HOUSTON • NEW YORK

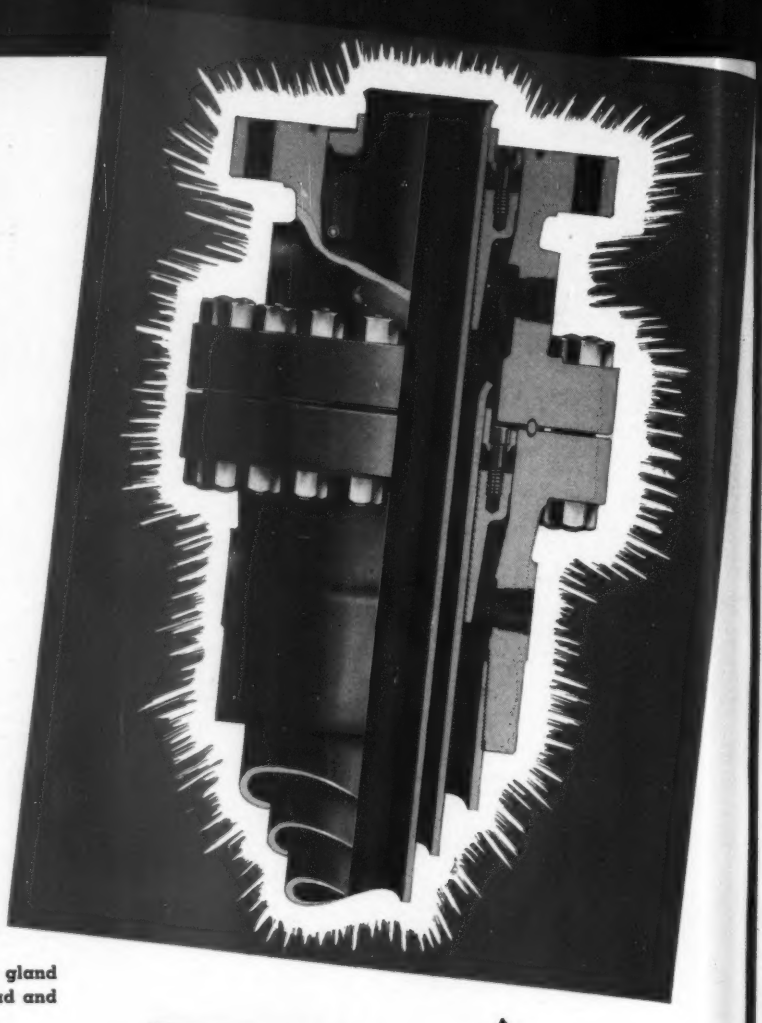
WHEN GAS-CHARGED UPPER SANDS MAKE WELDING FLANGES HAZARDOUS,

HERE'S THE SAFEST WAY TO SUSPEND AND SEAL CASING . . . . . .

CAMERON

TYPE "W" CASING HEAD

With Unitized Slip Suspension and Neoprene Seal



The Cameron Type "W" Casing Head, which provides slip suspension of casing with an improved neoprene-asbestos seal of the space between casing strings, is being used with marked success in a number of fields where gas-charged upper sands make welding operations hazardous. It combines the desirable instant sealing feature of a boll-weevil hanger with the flexibility of slip suspension.

As illustrated in the cross-section drawing herewith, the resilient seal ring and packing gland are assembled on top of the slips by means of socket head cap screws which screw directly into the top of the slips. Thus, when the well is kicking between strings the entire sealing and suspending assembly may be clamped around the pipe as a unit and dropped through the blowout preventers. When the casing is suspended on the slips, the entire assembly is held securely in place while blowout preventers are raised. The socket head cap screws are tightened to compress the packing and effect a seal between the strings before cutting off the pipe above the slips. When the well is not kicking between strings, the blowout preventers may be raised and the slips, packing ring and packing gland assembled around the pipe immediately above the casing head and lowered to the seat.

The Cameron Type "W" Casing Head is also extremely satisfactory where the use of high carbon casing makes welding operations difficult.

Interested operators are invited to write for complete details on all types of Cameron Casing Heads and Spools which feature four interchangeable methods of sealing and suspension, including the unique Type "M" Test-Weld Flange with secondary repackable plastic packing seal. All Cameron Casing Head Housings are available with the unique Cameron Test-Weld Landing Base if desired.

The industry's safest, most flexible method of drilling and completing high pressure wells . . . from grass roots to production . . . is described and illustrated in this booklet, "The Cameron Closed Pressure Method of Drilling and Completion." Write for a copy.

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CALIFORNIA
OIL WORLD
and Petroleum Industry

THE AUTHORITY ON THE CALIFORNIA OIL INDUSTRY

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August 14, 1940

Telephone Number Richmond 2136

ASTOUNDING—BUT TRUE

LOG OF WILDCAT WELL

Total Time . . . . . 67 Days
Total Depth . . . . . 10,747 Feet
Casing taken . 133 (equal to approximately 1200 feet)
Well Spudded . . . . . January 20, 1940
8000 Feet . . . . . February 23, 1940
8546 Feet . . . . . February 25, 1940
10,747 Feet . . . . . April 8, 1940

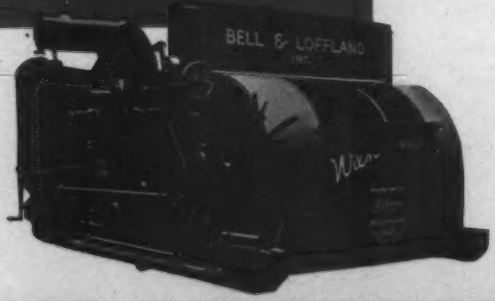
HOLE RECORD

0 Feet to 1237 Feet . . . . . 17½" Hole
1237 Feet to 8700 Feet . . . . . 13¾" Hole
8700 Feet to 9300 Feet . . . . . 11" Hole
9300 Feet to 10,747 Feet . . . . . 8½" Hole

Mudding-up at 8300 feet and very tough going below that depth. Deviation at 10,747 feet—1½ feet. Maximum at any point, 30 minutes.

Time below 10,000 feet, Going in—2 hours, 10 minutes. Time below 10,000 feet, Coming out—2 hours, 40 minutes, using 6700 feet of 4½" and balance 5½" drill pipe plus six 8 collars.

Round trips at 9300 feet using a mixed string of 5 9/16" and 4½" drill pipe and 360 feet of 8" drill collars—4 hours flat to 4 hours and 30 minutes.



WILSON Latest-Type Stand-by Unit delivered to Bell & Loffland, Inc. This unit embodies all the necessary features combined with light weight, low cost and greatest dependability.

Nine thousand dollars plus **is no small potatoes when it is sav on one well—but that's just what happened on a major company wildcat, drilled by Kern Drilling Company, twe miles East of Coalinga.**

Using a WILSON Titan Model Streamline Drilling R powered by two 350 horse power Gas Engines, comparati cost figures were kept with a steam rig used by the same company, at the same time, to the same approximate dep and drilling in the same area.

The WILSON Rig averaged 80,000 cubic feet of gas p day at 22c per thousand cubic feet—the steam rig 640,00 cubic feet per day at 12c per thousand cubic feet. T $9000 plus total includes savings on fuel, water, setti boilers and labor. No savings are included for repairs, figur by these operators as half of steam rig repairs due to boil elimination. • There are many other WILSON Rigs operati in California. If you don't know where they are, write phone us for particulars.

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Huge Mechanical Drilling Rig is Powered

By Internal Combustion Engines

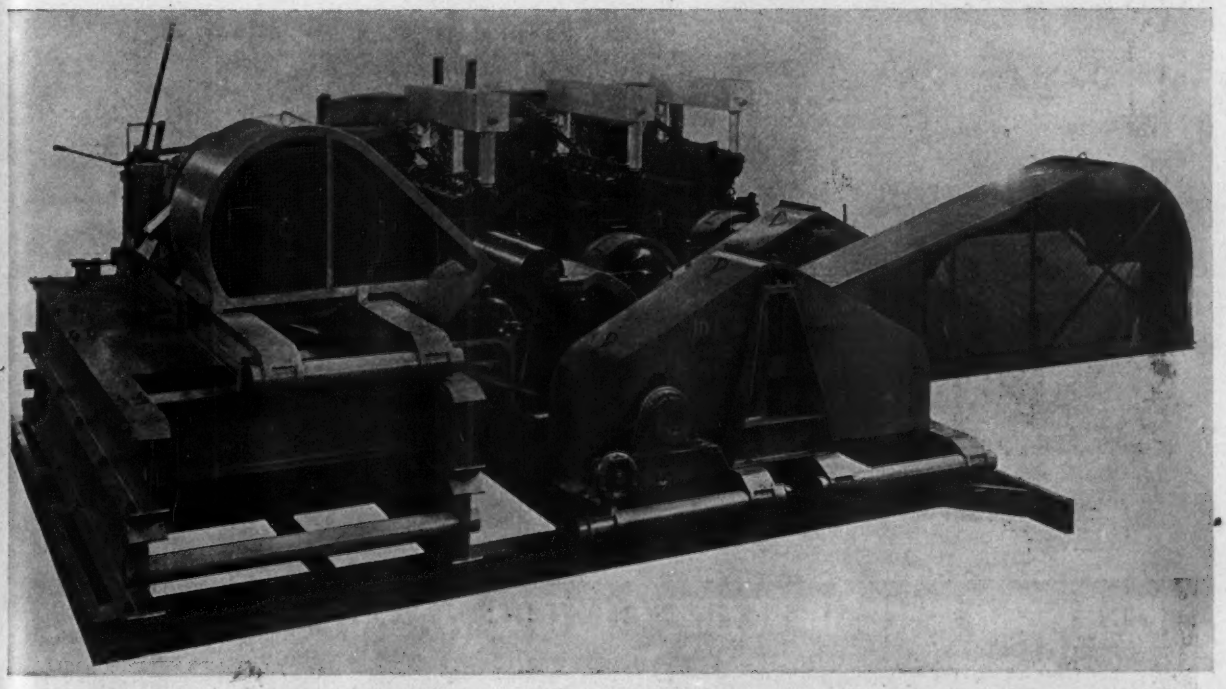
The driller operating in wildcat territory or somewhere in the vicinity of a recent oil or gas strike, has numerous difficult problems. Often the prospected area offers little or no suitable water. The terrain may offer anything from marsh lands to rocky hillsides for the road building gang, and natural hazards which will limit the driller in the choice of equipment. In most wildcat adventures it appears that nature challenges the prospector with a stacked deck.

A trend which has apparently solved many of these problems for operators in California is that represented by the numerous "power rigs" running in the latest proven fields, in untested areas, and in older fields where lower fuel costs, little water requirement, and improved transportation and setting up facilities are desirable.

Illustrated in these pages are a number of mechanical rigs powered by internal combustion engines. These drilling units are far advanced over their early counterparts developed in Mid-Continent and Gulf Coast operations. With the rigs shown here the old disadvantages of stalling, failure due to over speeding, difficulties in reversing direction of power, difficulties in maintaining pressure without circulation, and the like, have been overcome in decisive fashion.

Climaxing more than ten years of experience in building rigs powered by internal combustion engines, National Supply Co. has just completed a "super power rig" featuring

Looking over the activities in Coles Levee are these Bell & Loffland executives, left to right, Neil Norris, A. H. Holder, and E. L. Smith.



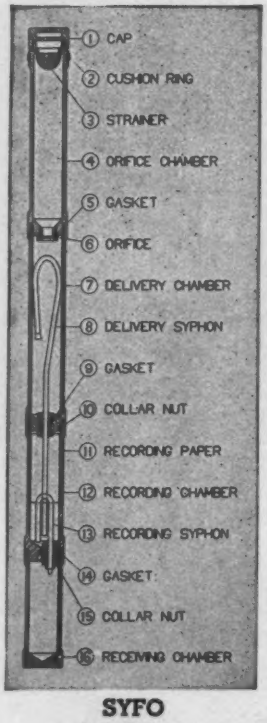
This huge "power rig" can be separated quickly and transported easily on three trucks over ordinary highways. It is to be used by Bell & Loffland, Inc.

ACCURACY
is all-important in
WELL SURVEYS

Sperry-Sun well surveying methods and instruments insure accurate results.

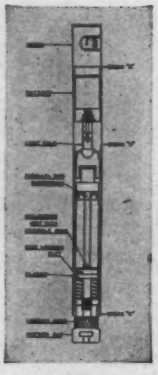
You can't afford to take chances with inaccurate well surveys! So much money is at stake in every drilling operation **that anything less than the best in well surveys is poor economy.** Be absolutely **sure** of accurate results—use **Sperry-Sun** methods and instruments. The cost may be a little higher—but assurance of accuracy is well worth it!

Information regarding the various instruments and services of Sperry-Sun, together with literature, may be obtained either from our home office in Philadelphia or from any one of our branch offices.

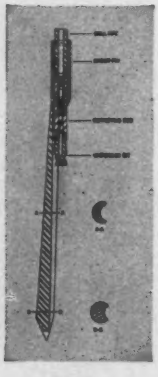


SYFO
Self-Checking
SINGLE SHOT

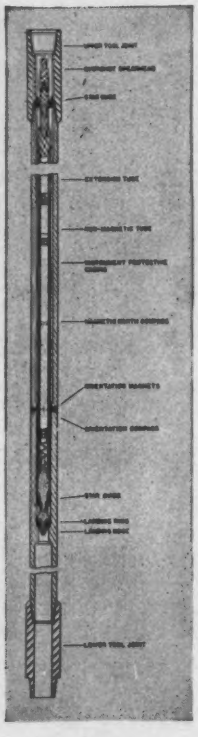
Sample Core
POLAR CORE ORIENTATION SERVICE



H-K
INCLINOMETER



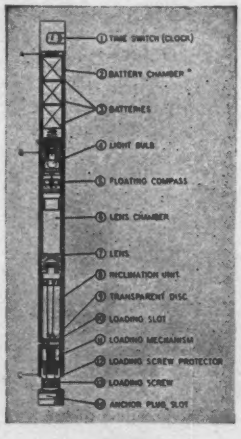
K-K
WHIPSTOCK
and
REMOVAL SUB



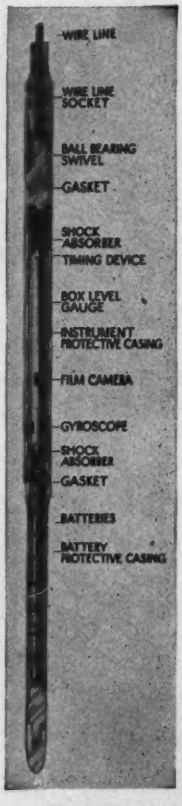
MAGNETIC DEFLECTING TOOL ORIENTATION

MAGNETIC DEFLECTING TOOL ORIENTATION RECORD

H-K
Single Shot
RECORD DISC



H-K
Self-Checking
SINGLE SHOT



SURWEL
SELF-CHECKING
MULTISHOT

SPERRY-SUN WELL SURVEYING CO., 1608 WALNUT ST., PHILA., PA.

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hydraulic couplings for Bell & Loffland, Inc., drillers of numerous successful wildcat and extension tests in California. The builders of the rig have drawn heavily on field experience, and have contributed some important features developed in their own field testing activity.

While Bell & Loffland, Inc., has not yet announced the first site of operations for the new rig, the construction data of this super power rig are available and indicate the advantages offered for certain types of operations.

The huge rig drive, with its three engines, large pumps and heavy duty drawworks was built to meet the demand for a drilling plant powered by internal combustion engines which would approach the performance of the large heavy duty steam rigs now being used in California. The maximum rating of the three-engine drive is over 1100 horse power and the sprocket ratios give the drawworks a very selective and wide range of speed. At the lowest speed a line pull of nearly 40,000 pounds is available and yet in the high speed drive, the line speed may reach 3500 feet per minute without overspeeding the engines, the designers assert.

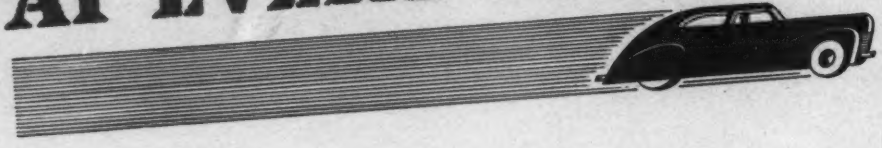
A view of the unique setup is best provided in a discussion of the major feature of its unitized plan, the design of the subframes and lesser frame structures. The major subframe is made from 10-in. H-beams, all welded, and built to allow bolting together to form a steel mat to which all other frames are bolted. This assures a sturdy foundation for the rig as well as making it possible to secure perfect alignment of all units and reduces set-up time to a minimum. This subframe disassembles into units, all of which can be easily transported on the highways.

Each engine with its transmission shaft, hydraulic coupling, pillow blocks and V-belt sheaves is mounted on a base or skid frame which assures correct and essential alignment of these parts at the time of assembly, and makes it unnecessary to spend valuable time attempting to obtain this accuracy when set-

Standby for the big Bell & Loffland rig is this Wilson Giant Model double drum drawworks equipped with 160 horsepower Waukesha Model GAKU gas-gasoline engine. The Wilson unit is compact, light, and strong. The lower drum will have dead end of casing line spooled on it for raising the pipe in the event that the main drawworks breaks down. Upper drum will handle 13,200 feet of 9/16-in. sandline or 16,800 feet of ½-in. sandline, which is sufficient for surveying or swabbing the deepest wells. The unit, shown on the H & B Sales Co. platform ready for shipment, is equipped with rotary table drive sprocket and clutch.

Finer FLYING A

SMOOTH AT EVERY SPEED

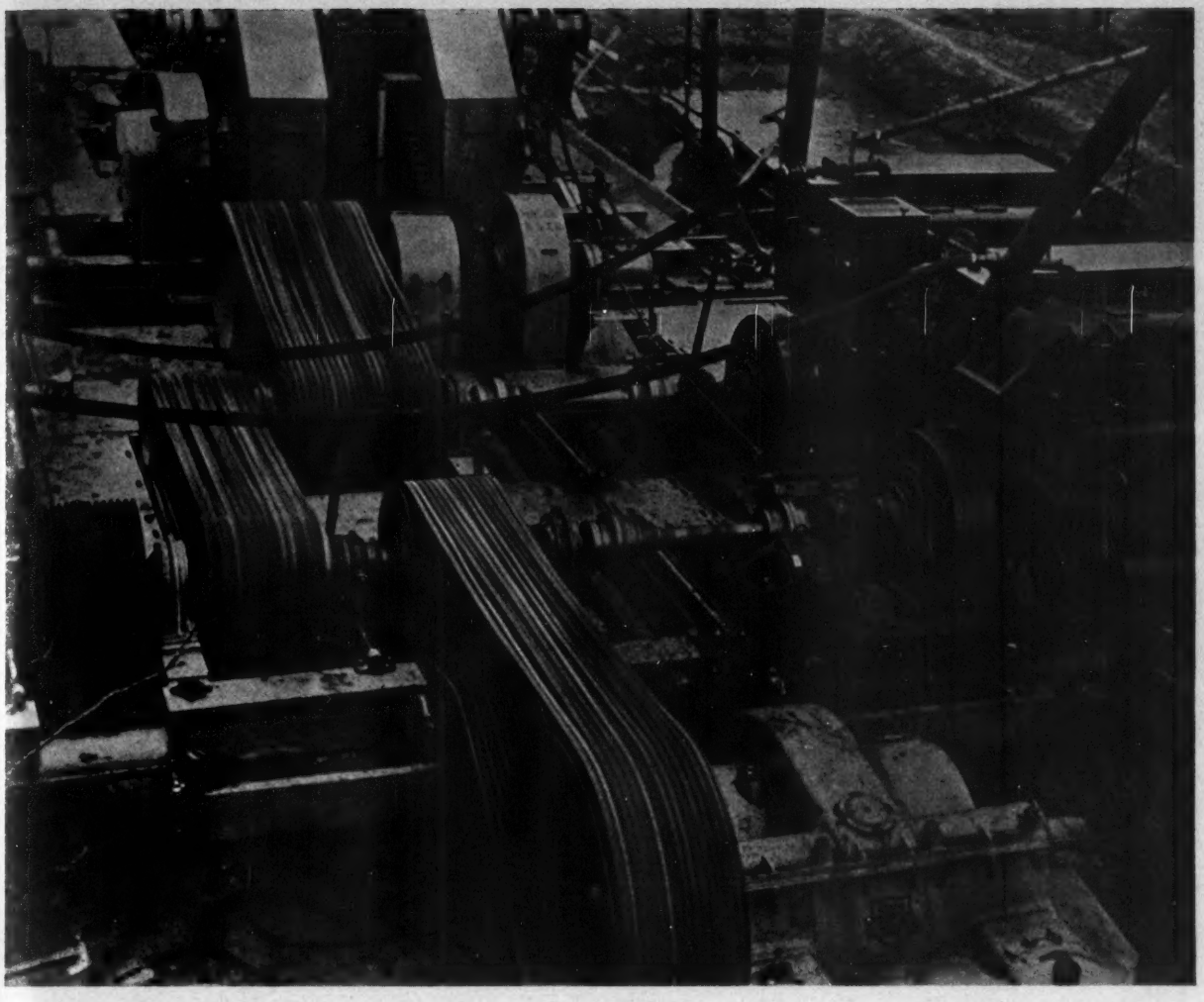


7 GASOLINES IN ONE

Polymerized, alkylated, re-formed, cracked, solvent-refined, straight-run, natural—all the great gasolines have now been blended into Finer Flying A to give you *smoothness at every speed!* Made an entirely new way by the makers of Aviation Ethyl. Offered at the regular gasoline price. Proved in a car just like yours. Try Finer Flying A today—for *smoothness at every speed!*

TIDE WATER ASSOCIATED OIL COMPANY

Let's get ASSOCIATED

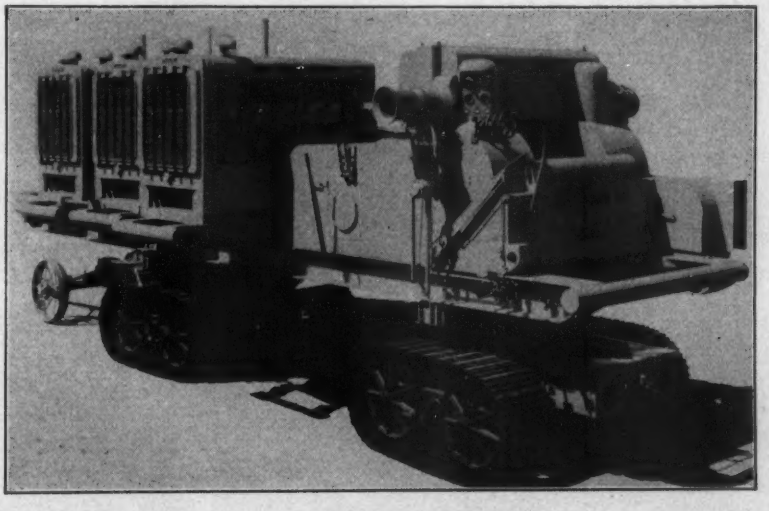


In February of 1937 National developed this Diesel powered mechanical rig for Loffland Brothers at Wewoka, Okla. The absence of hydraulic couplings, adjustable idler pulleys, and guards is immediately noticeable. While V-belts are used for power transmission, the arrangement is much less flexible than in the latest rig made for Bell & Loffland, Inc.

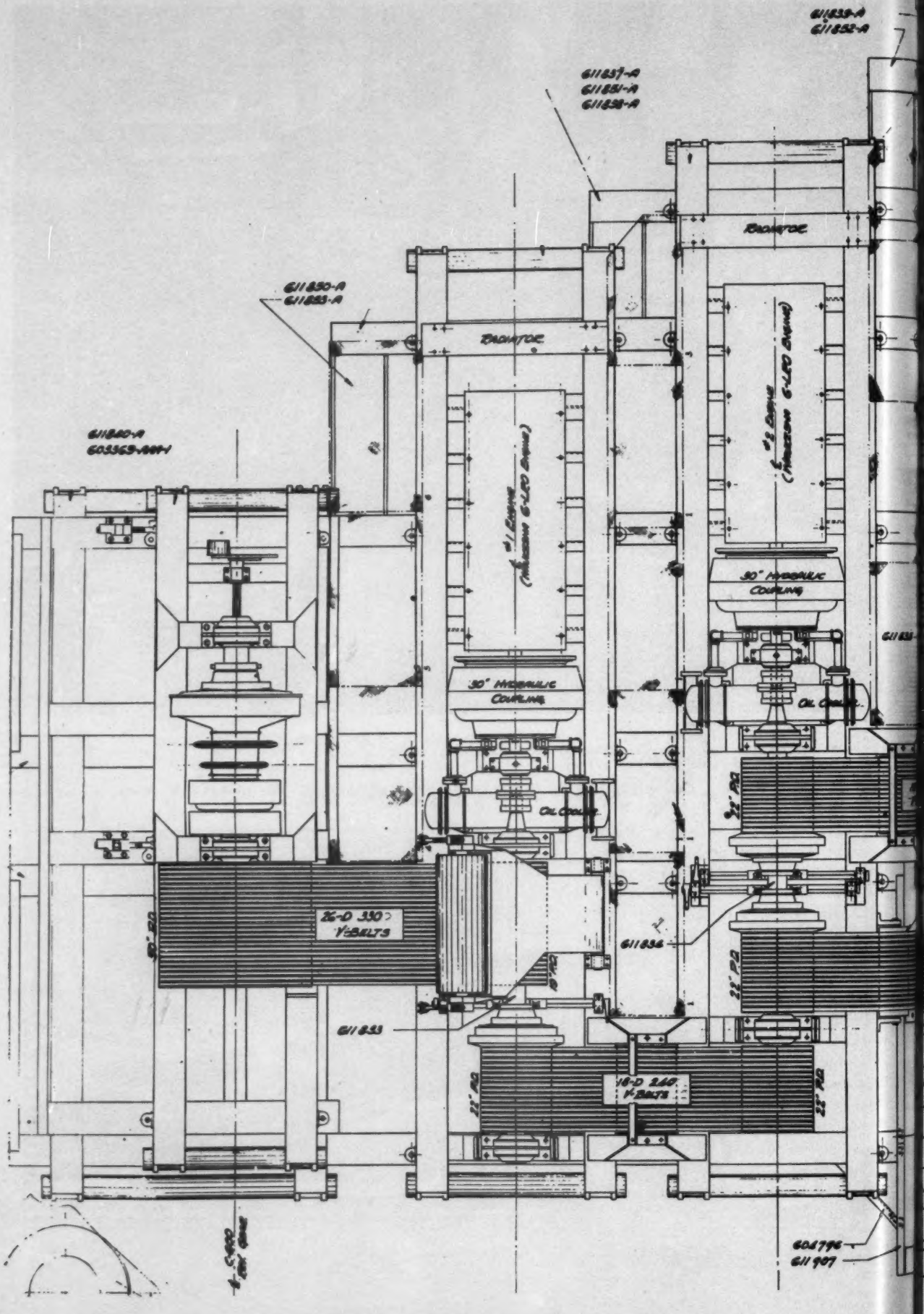
ting up in the field. The engine frames are built with 12-in. by 10-in. H-beams turned up at the ends to make skidding easier. When the three engine skid-frames bolt to the subframe mat in criss-cross arrangement, the entire drive, including all engines, shafts and drive pulleys, become secure parts of a rigid, unitized structure.

The base which supports the reverse gear and back of the drawworks is made in two sections, each 24-in. high to accommodate different heights of derrick floors. These sections permit highway transportation and facilitate skidding. The pumps are mounted on 8-in. H-beam subframes which bolt to the basic steel mat, tying the pumps into the unitized structure.

To assure perfect belt alignment the pumps are bolted to an inter-



This Wilson Giant Diesel rig will drill wells to 6000 feet with 4½-in. pipe, and to 8000 feet with 3½-in. pipe. More details on the unit will be found on page 15 of this issue.


611839-A
611852-A
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611858-A
RADIATOR
611850-A
611853-A
RADIATOR
611860-A
603369-A8M-1
#1 ENGINE
(WESTERN 6-LTD ENGINE)
#2 ENGINE
(WESTERN 6-LTD ENGINE)
30" HYDRAULIC COUPLING
30" HYDRAULIC COUPLING
OIL COOLER
OIL COOLER
2C-D 330
V-BELTS
611836
611833
16-D 240
V-BELTS
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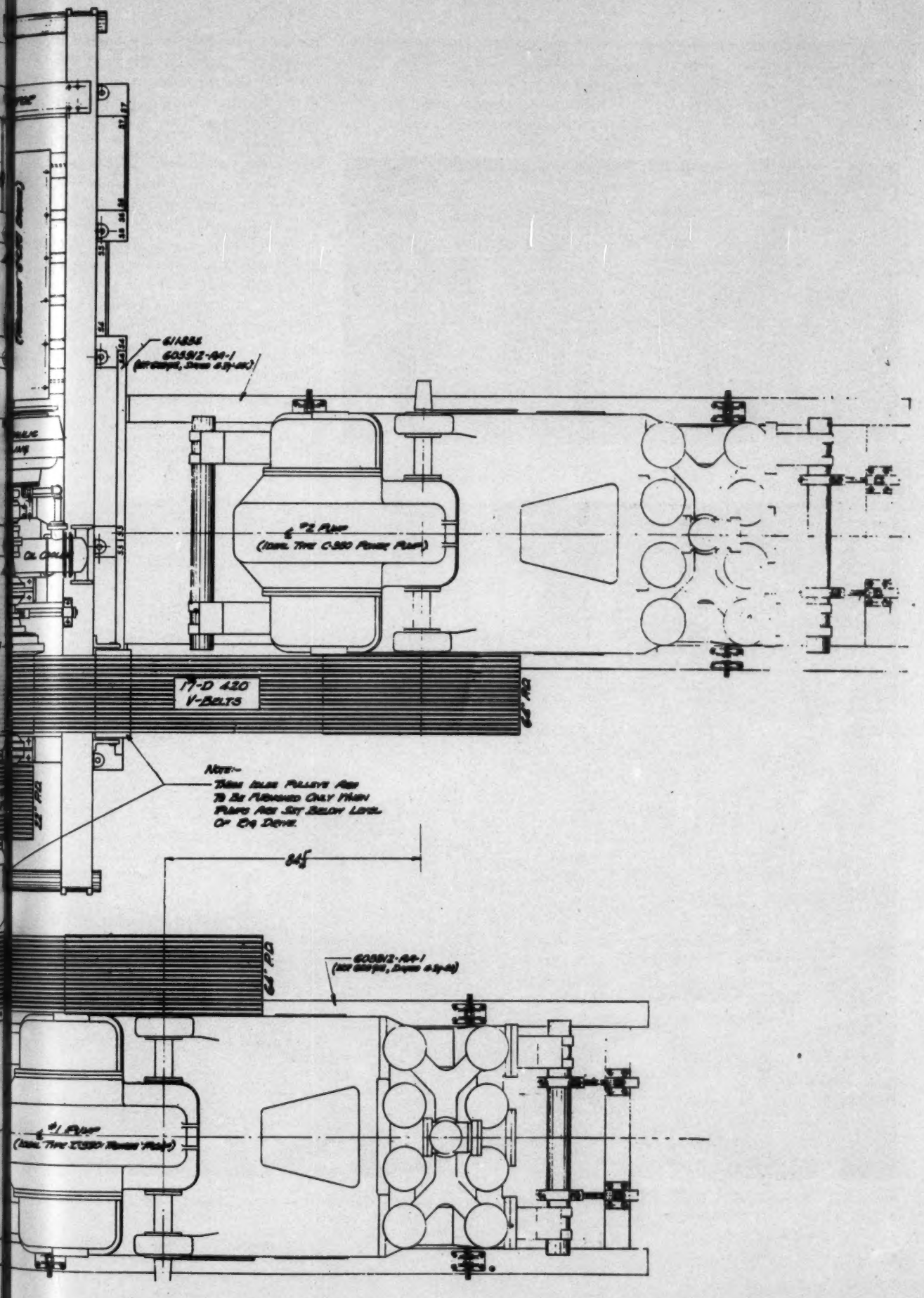
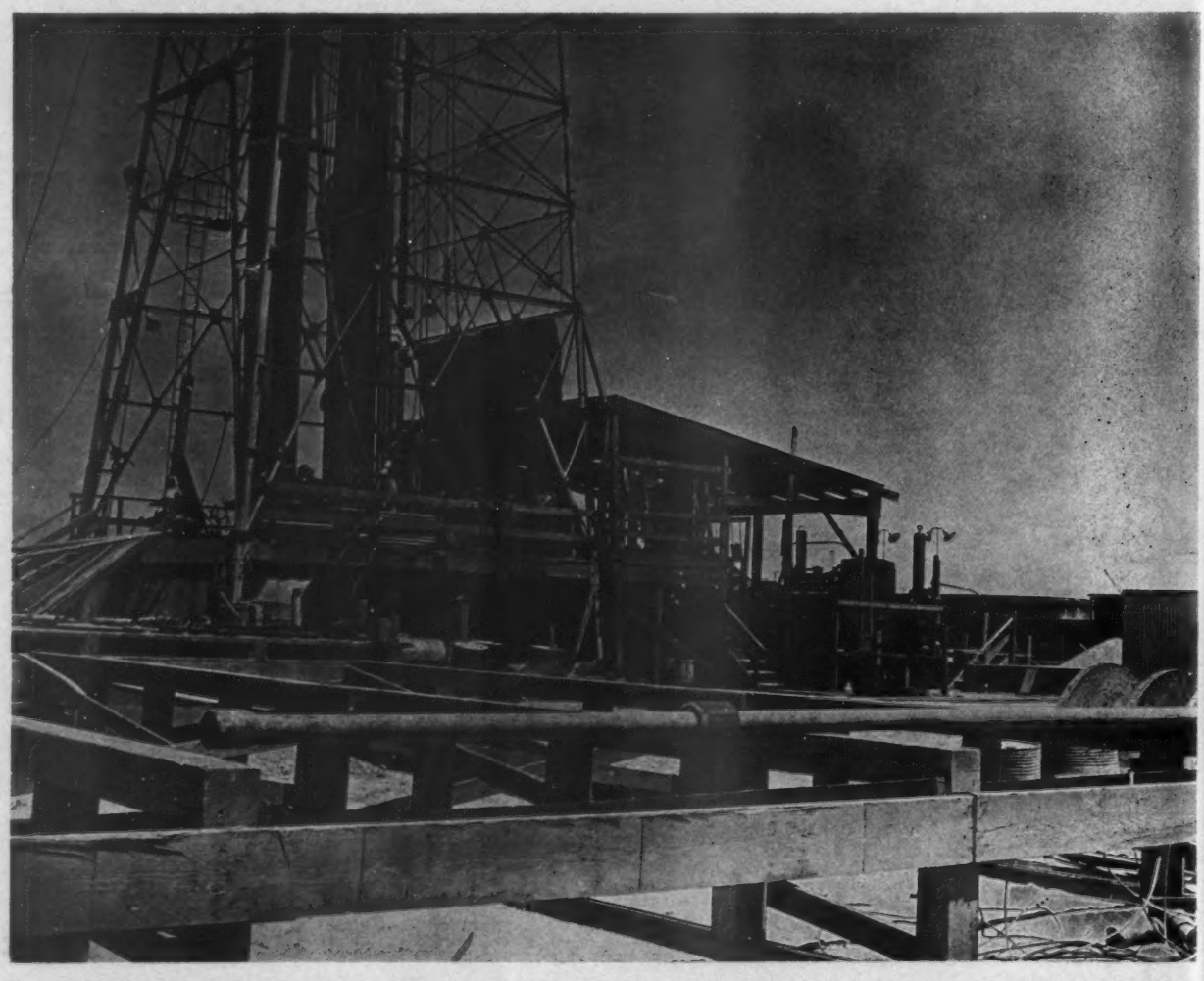

17-D 420
V-BELTS
NOTE:-
THESE IDLER PULLEYS ARE
TO BE FITTED ONLY WHEN
PUMPS ARE SET BELOW LEVEL
OF ENG DRIVE.
84"

mediate skid frame which can be moved and held in any position on the subframe by a system of built-in jack screws. To permit adjustment of proper belt tension, adjustable idler pulleys are also mounted on the frames. The engines are mounted in staggered arrangement rather than in line to make the power plant more flexible, that is, it is possible for either pump engine to drive either pump or it is even possible for the third or rotary engine to drive either pump in case of emergency. It is also possible, and sometimes very convenient, to run both pumps at different speeds as in compounding the pumps when they are equipped with different size liners. The plan has been to make the power of any engine available to any unit in the system for the sake of dependability, and the staggered position of the three engines, the National Supply engineers say, makes this possible without losing simplicity.

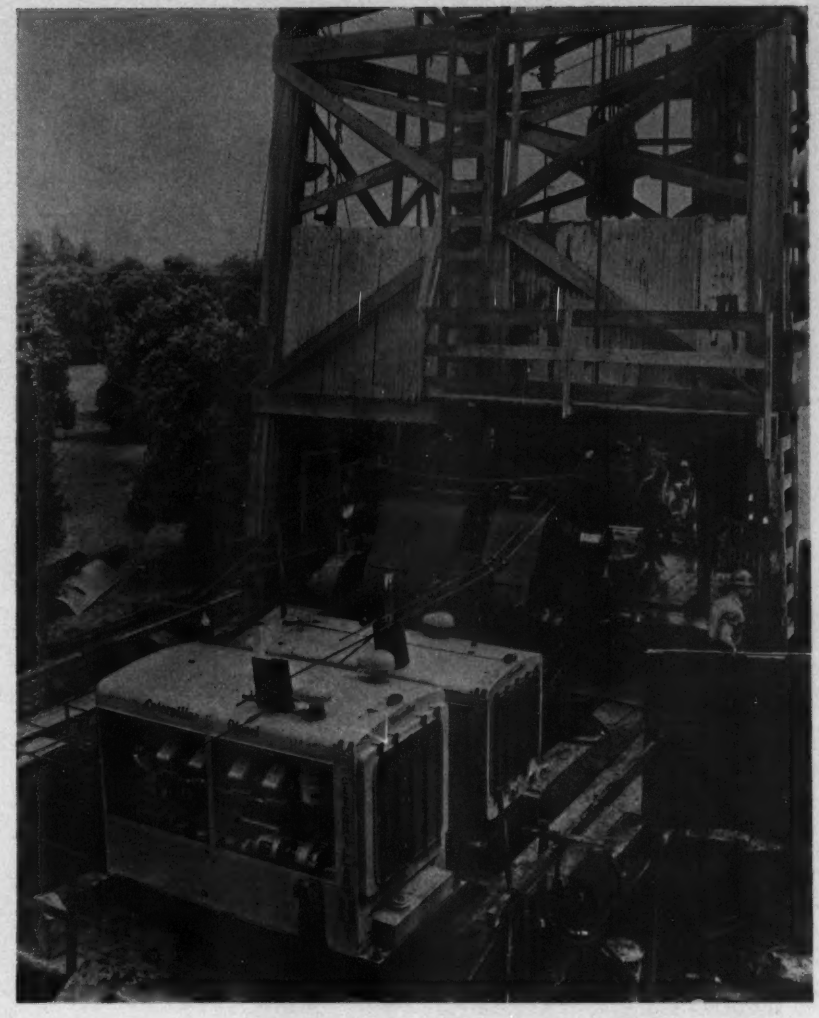
The throttles of the three engines are synchronized by means of Erwin Equalizers, and can be individually controlled if desired.

Drilling ahead on Richfield's No. 52-53 in Coles Levee for Bell & Loffland, are left to right: Earl Herkimer, Driller A. C. Young, G. W. Banks, W. F. Heasley, and J. C Devine.



Here is the 3-butane engine powered mechanical rig Pike Drilling Co. is using to put down Richfield Oil Corp.'s No. 18-28 in Cole's Levee.

In the Brea field these two "Caterpillar" diesels, D17000 and D13000 sizes, are prime movers for a compact oil well drilling mechanical rig.



The Hydraulic Couplings

One of the principal features of the Bell & Loffland giant power rig is in the application of the "fluid drive" to transmit power from the prime movers to the mechanical equipment. These "fluid drive" couplings are 30-in. Scoop Control Hydraulic unions made by the American Blower Corp. These couplings were selected because of their speed control characteristics, the engineers say. They are bolted to the flywheel of the engines and are supported on the outside by an outboard bearing. The use of Fast's Flexible Coupling allows the shaft supporting the hydraulic coupling to be separate from the transmission shaft.

National Supply Co. has been interested in hydraulic couplings for several years and has made comprehensive tests, using them in conjunction with pump, hoisting and rotary drives. The results of these tests, company engineers say, were so satisfactory that the engines and couplings used in the tests were incorporated in a rotary rig drive which has been operating in the field for the past two years. Reports from the operators indicate that many unusual situations are handled easily with this drive.

Watching the instrument board on the Schlumberger truck testing at Richfield's No. 14-33, Cole's Levee, is Jean Jouanet. On the truck are Harold Moore and O. Peavy.

National Supply Co. engineers say that it has been found that pumps connected to an internal combustion engine by a hydraulic coupling can be operated to advantage at all speeds from maximum down to stalling, with the pumps so installed having been held for several hours at stalling pressure. The pressure at the discharge of the pump, the engineers assert, when in the stalled condition, can be varied to meet any situation by varying the engine speed and the scoop control in the coupling.

There is a slight amount of slip in the coupling and the nature of the design allows for dissipation of the heat generated under normal

This Bell & Loffland crew in Cole's Levee is putting down Richfield's No. 14-28 in smooth order. Noting progress is Neil Norris, Bell & Loffland executive, third from the left. Left to right they are: Charles Haslam, Bill Henry, Mr. Norris, Red Arrant, Driller A. C. Thompson, and Ralph La Rue.

running conditions. However, when the slip is deliberately increased to meet a certain condition, it becomes necessary to provide coolers for the oil in the coupling. On the Bell & Loffland rig such coolers have been provided for each of the three hydraulic couplings. The coolers are of the heat exchanger tube bundle type.

When hoisting, an instantaneous load is encountered at the moment of engagement of the hoist clutch, and the hydraulic coupling will slip at this point and permit the engines to take hold, rather than stall at the instant of excessive overload. The hydraulic coupling has also proven itself to be a great aid in fishing. It is possible, according to the designers of the rig, to rotate the table very slowly and at the same time permit the engine to run at considerable speed and develop more torque than if it were held down to a very slow speed. Also certain overshots do not permit circulation and it is yet desirable to maintain pressure. This means that the pump is stalled. The hydraulic coupling makes it possible to hold the pressure desired and to also vary it as conditions change. This performance has been proven by actual fishing jobs in the field, National Supply Co. engineers say. They point out, also, that the coupling will not deliver any more than the maximum engine torque regardless of the amount of slip allowed, therefore there is no danger of overloading the pumps. The Scoop Control on each coupling can be regulated to meet any condition from the driller's position by the use of hydraulic remote control.

Power Plant

Power for the Bell & Loffland rig is supplied by three Waukesha Model 6-LRO Engines using butane as fuel. Displacement is 2900 cu. in. and horse power available is 350 at 900 r.p.m., for each. That is the maximum continuous speed recommended by the manufacturer.

The engines are 6-cylinder 4-cycle, with 8½-in. by 8½-in. cylinders. A 4-cylinder gasoline engine is geared to the flywheel of each butane engine to act as a starting power.

Each engine is equipped with an

Working with the largest internal combustion engine powered mechanical rig in California to date is this Pike Drilling Co. crew drilling Richfield's Cole's Levee No. 18-28. Left to right they are: Driller J. H. Swain, Ray Reed, Joe Smith, Tom Webb, and J. W. McLaughlin. Prime movers on the rig are three 350 h.p. butane engines compounded to drawworks on hoisting through Emsco double chain drive. Two of the engines drive the pumps and the third, designed to run counterclockwise, is the regular drawworks and rotary table prime mover.

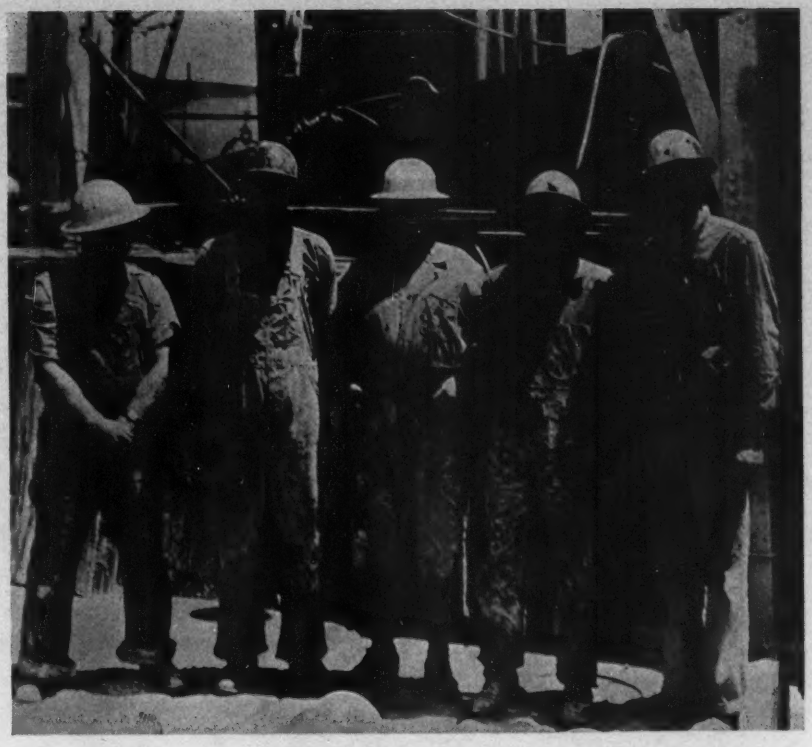
Ensign Carburetor and Luber-finer Oil Filter. They are also equipped with a combination flame arrester and muffler. The exhaust, as it leaves the manifold, is taken through a water jacketed pipe to a water tank mounted on top of the engine where the exhaust gases are forced to impinge on a surface of water before being released to the atmosphere. The throttles of the three engines, as previously mentioned, are synchronized by means of Erwin Equalizers and can be individually controlled if desired.

Transmission

Power is transmitted between engines and to pumps by means of Gates Vulco Rope Drives (V-belts). The V-belt drive to the Reverse Gear from No. 1 engine is a 26-belt drive as it must carry the power of all three engines when they are all used for hoisting. All of the V-belt drives are equipped with adjustable idler pulleys to maintain the proper belt tension at all times. All idling pulleys are mounted on Timken Roller Bearings. Between each engine and shaft is mounted a Fast's Flexible Coupling which assures that each shaft will ride freely in the bearings.

Various drives are engaged and disengaged by means of Twin Disc Friction Clutches which are equipped with two operating levers so that they can be controlled from either side of the shaft. This is done to save time and steps.

There are two drives from the Reverse Gear to the drawworks. This affords two speeds for the drawworks jackshaft and makes possible six hoisting speeds for the drumshaft. The entire transmission when set up becomes a single unit belted rigidly together with no misalignment in the drives, the designers say. At the same time it can be separated into three units to facilitate moving between wells.



Waiting on the Schlumberger on Richfield's No. 14-33, Coles Levee, are, left to right: Carl Kinney, G. Creath, E. E. Arnold, Clyde Olson, and Pat Irvine, of Taft Drilling Co.

Drilling Richfield's No. 34-33 at Coles Levee are, left to right: F. S. Meyers, R. I. Kightlinger, J. H. Boyd, Jack Stovall, and Driller G. G. Rice, of Taft Drilling Co.

Pumps

Two Ideal C-350 Power Pumps are used to handle the mud circulating through the hole as well as to provide a means of mixing fresh mud, and for pumping out the cellar, transferring mud from one tank to another, operating mud guns, etc. Extremely high pressure can be maintained through compounding and large amounts of fluid can be handled by running the two pumps in parallel. The pumps are equipped with 7¾-in. diameter lines and have an 18-in. stroke. They are rated at 350 hydraulic horsepower and have 3000 pounds per sq. in. working pressure fluid ends. The

normal speed is 55 strokes per minute.

Drawworks

The drawworks is mounted on the derrick floor with the back of the drawworks base resting on the Reverse Gear sub-base. It is an Ideal 23-10½ FE Drawworks with extra attachments to provide six speeds to the drum, and with independently mounted 40-in. Hydromatic brake connected to the drumshaft by a clutch coupling. This method of mounting the brake allows the drumshaft to be free of the usual load created by placing the brake on the drumshaft, and also makes it possible to disconnect the brake when not needed, the rig designers say. Manhattan asbestos brake lining is used.

Reverse Gear

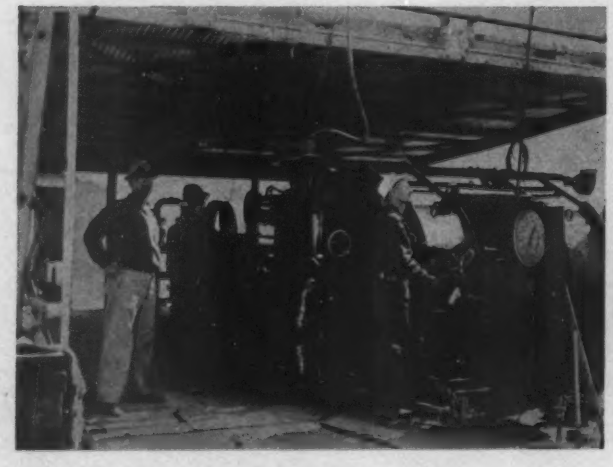
The Reverse Gear is used to take the power from the engines and deliver it to the drawworks. It also provides a means for reversing the drawworks drive. The reverse gear has three positions: forward, neutral, and reverse, and is equipped with hydraulic controls.

All drives are completely guarded and wherever possible guards are made from sheet steel and heavy wire screen. The sides are screened to provide as much ventilation as

The interested observers watching Driller J. J. Masters put down Royalty Service's Gilmore No. 842-1, in Wilmington, are, left and right, George Plunkett, of Zublin Bit, and C. T. Gates, of Royalty Service. E. A. Benders is the contractor.

Drilling Wood-Mellon Oil Co.'s G. B. Wood No. 1, Dominguez outpost, are, left to right, Pat McAnulty, S. V. Love, Don Zillion, Bones Smith, Blackie Ervin, Russell Coffman and M. R. Wise.

At Paloma, below, are George Hill, F. B. Nease, and T. J. McMullin, drilling KCL B-3 for Ohio Oil Co. At right is a not so rare situation in brand new fields. The drive pipe drifted out of vertical and had to be pulled. Note the bent drive pipe at right, and new pipe, left.



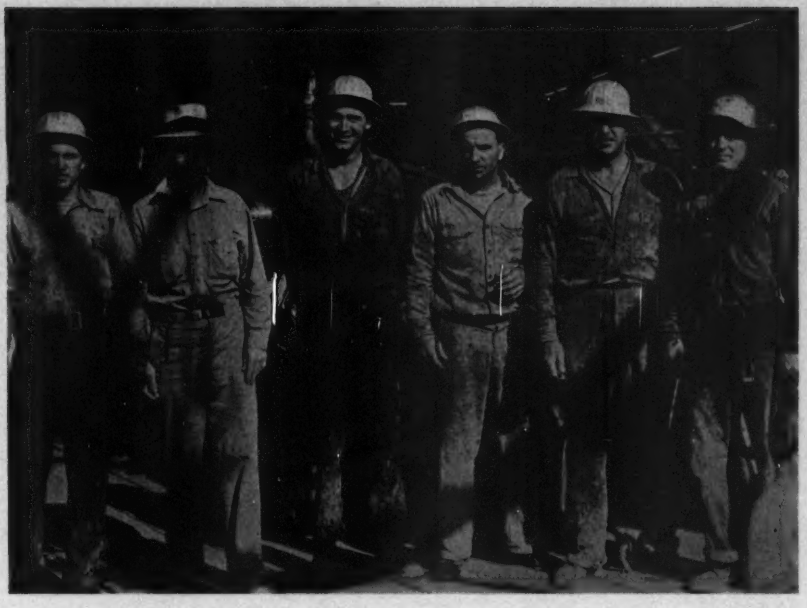
possible for the drives, while the top of the guards are solid to obtain protection from the weather. Steel flooring with safety tread covers all space between the guards.

A Worthington 2-in. Centrifugal Pump is driven by Gates V-belts from the No. 1 engine shaft and is used to supply water for the engine flame arresters, the coupling coolers and for general wash down purposes.

Wilson Giant Diesel Rig Shipped to South America

John H. Wilson, president Wilson Manufacturing Co., Inc., announces the shipment of a Wilson Giant Model Streamlined Rig, with many special features to South America where it will be in operation.

The Giant Rig will drill wells to 6000 feet with 4½-in. drill pipe and to 8000 feet with 3½-in. drill pipe. It is equipped with friction clutches on both drum clutches, on rotary drive, and on pump drive through a two-pump jackshaft; air controls on both drum and chain transmission clutches; centrifugal pump driven from the drawworks engine output shaft that will furnish water for the cooling system for both drum clutches and brake rings; single stage air compressor also driven from drawworks engine output shaft which will furnish air under pressure for operation of drum and transmission clutches; brake rings specially flame hardened and ground; powered by Caterpillar D17000 full diesel engines, equipped with two pump jackshaft from the rear or dump engine; oil bath chain compound drives are so arranged that the power from the three engines may be combined either to drawworks or the pump drive, so that two engines can be used on the drawworks and one to the pump or two to the pump and one to the drawworks.

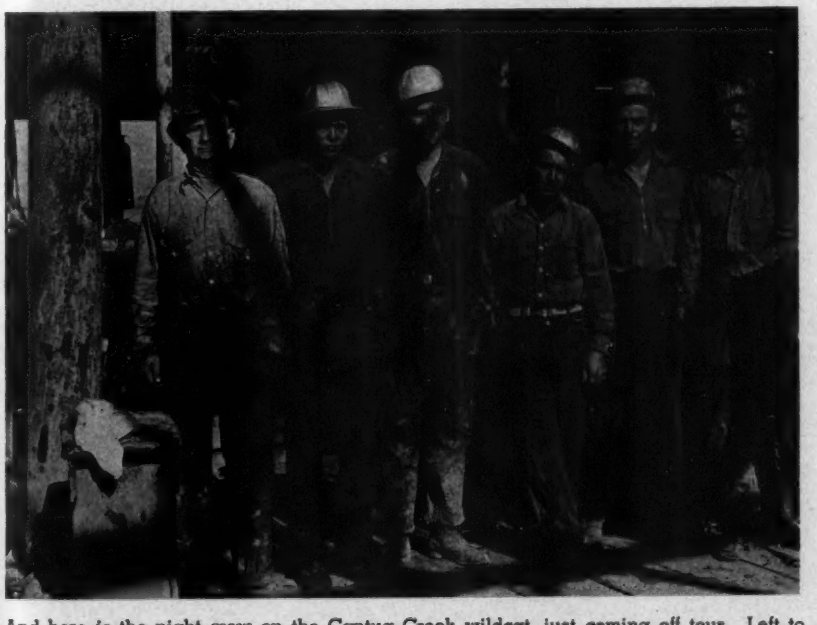


Drilling Cantua Creek's unpromising wildcat, Yearout No. 44, Sec. 26, 16-14, is this day crew of Pettijohn Drilling Co. Left to right: Verlyn Wallace, back-up; Clyde Walters, pusher; Ray Johnson, lead tong; V. W. Wallace, driller; W. L. Brunton, derrick man; Archie Branch, cathead.

The entire unit is mounted complete on model ET-1025 Athey truss wagon with 24-in. heat treated tracks; this arrangement means that no dismantling of the unit is necessary when moving between locations. Unit will remain mounted on truss wagon.

The only disconnection necessary will be breaking the chain to the rotary table and taking the V-belts off the pump pulley or pulleys.

Pacific Coast distributors for Wilson Manufacturing Co. are the H. & B. Sales Co., Ltd., 2875 Cherry Ave., Long Beach, Calif.



And here is the night crew on the Cantua Creek wildcat, just coming off tour. Left to right: J. H. Johnson, fireman; George B. Rathbun, lead tong; E. M. Bechtel, back up; K. G. Long, cathead; Nelson Lane, derrick man; H. S. Brigham, driller. The well is Logan Yearout No. 44.

A. P. I. Production District Meeting Date

The Pacific Coast District, A.P.I. Division of Production will hold its regular spring meeting March 11, 1941 in the Biltmore Hotel, Los Angeles.

E. J. Bartosh, Bankline Oil Co., has been appointed chairman of the Program Committee, complete personnel of which will be announced later. Suggestions on topics for discussion are invited; these should be sent to Mr. Bartosh.

Committees on Arrangements and Publicity will be announced later.

Fayette B. Dow, Washington representative of the American Petroleum Institute, has been appointed an advisor on transportation to Ralph Budd, member of the National Defense Advisory Commission in charge of coordinating the nation's transportation facilities.

Production « « » » Development

(Figures of Production and Stocks are in barrels of 42 Gals.)

	Total Production June	—DAILY AVERAGE— June, 1940	May, 1940	June, 1939
Group No. 1				
Arvin	55,688	1,856	2,014	944
Belridge—North	323,380	10,779	10,664	12,042
Belridge—South	61,273	2,046	2,108	1,128
Canal	175,205	5,840	5,778	5,234
Canfield Ranch	1,154	38	40	52
Coalinga	803,799	26,793	26,600	13,490
Cole's Levee	112,255	3,742	3,854	686
Edison	70,521	2,351	2,332	2,276
Elk Hills	368,241	12,275	12,454	10,605
Fruitvale	171,080	5,703	5,620	6,406
Greeley	117,069	3,902	3,735	1,980
Kern River	355,755	11,850	11,961	10,950
Kettleman Middle Dome	.....	.....	.....	29
Kettleman North Dome	1,407,008	46,900	46,916	52,513
Lost Hills	113,989	3,800	4,112	3,153
McKittrick	110,361	3,679	3,545	3,715
Midway-Sunset	1,541,337	51,378	52,679	52,486
Mountain View	198,474	6,616	6,626	8,446
Mount Poso	283,629	9,454	10,002	11,130
Paloma	10,417	347	174	.....
Rio Bravo	229,347	7,645	8,010	7,638
Round Mountain	212,275	7,076	7,156	8,530
Strand	47,651	1,588	1,631	203
Ten Section	286,976	9,566	8,946	9,039
Tupman	60,172	2,006	1,631	402
Wasco	50,425	1,681	1,587	1,129
Wheeler Ridge	9,125	304	311	330
Group No. 2				
Capitan	52,654	1,755	1,814	2,416
Elwood	105,443	3,515	3,613	3,824
Rincon	120,520	4,017	3,964	3,733
San Miguelito	99,083	3,303	3,139	2,464
Santa Barbara	6,957	232	221	297
Santa Maria	193,978	6,466	5,536	6,917
Santa Maria Valley	509,228	16,974	17,077	12,854
Summerland	506	17	21	26
Ventura Avenue	1,026,692	34,223	33,886	38,754
Ventura-Newhall	237,200	7,573	7,393	6,196
Watsonville	750	25	27	30
Group No. 3				
Brea-Olinda	173,061	5,768	5,657	5,771
Coyote—East	120,839	4,027	4,039	2,540
Coyote—West	200,840	6,695	6,320	9,378
Dominguez	649,067	21,636	21,244	17,979
El Segundo	65,437	2,181	2,310	3,187
Huntington Beach	773,471	25,782	25,250	26,491
Inglewood	361,349	12,045	12,238	12,725
Lawndale	1,020	34	46	33
Long Beach	1,322,994	44,100	43,636	45,743
Los Angeles-Salt Lake	16,070	536	555	482
Montebello	649,617	21,654	21,730	20,068
Playa Del Rey	122,870	4,096	4,262	5,127
Potrero	49,825	1,661	1,694	1,131
Richfield	273,007	9,103	9,306	8,970
Rosecrans	352,386	11,746	10,074	11,507
Santa Fe Springs	790,680	26,356	25,994	27,500
Seal Beach	215,120	7,171	7,095	7,025
Torrance	326,932	10,898	11,242	18,093
Whittier	5,448	181	642	970
Wilmington	2,534,096	84,470	82,913	80,510
Total	18,523,925	617,464	613,524	607,376
May	10,109,257	613,524		
Increase (*Decrease)	495,332*	3,940		

SUMMARY OF CALIFORNIA OILFIELD OPERATIONS FOR JUNE, 1940—STOCKS HELD IN PACIFIC COAST TERRITORY BY CALIFORNIA OIL COMPANIES

	June 30, 1940	May 31, 1940	June Changes	June 30, 1939
1. Gasoline-Bearing Crude	35,190,264	35,721,588	− 531,324	38,806,186
2. Non-Gasoline-Bearing Crude	13,340,198	13,279,151	+ 61,047	14,206,766
3. Unblended Nat. Gas	2,418,391	2,210,560	+ 207,831	2,396,219
4. Gasoline (not including distributing and service stations)	16,264,529	17,278,777	−1,014,248	14,129,499
5. Naphtha Distillates	1,855,903[1]	1,709,868[1]	+ 146,035	1,574,503[1]
6. Gas Oil and Diesel Oil	9,733,721	9,810,933	− 77,212	10,333,510
7. Fuel Oil Residuum	65,127,840	65,101,337	+ 26,512	70,841,319
8. All Other Stocks	8,775,852[2]	8,713,600[2]	+ 62,252	7,172,119[2]
TOTAL	152,706,707	153,825,814	−1,119,107	159,460,121
[1]Estimated amount of unfinished gasoline contained in item 5	1,660,590	1,484,388		1,310,625
[2]Coke included in item 8	1,300,640	1,252,685		284,089

	New Rigs Up	Producers Active Drilling	Completed	Daily Initial Output	Active Producing	Abandoned Wells Drillers	Producers
Group No. 1							
Arvin	..	....	1	528	16	....	....
Belridge—North	1	4	1	187	80	....	....
Belridge—South	..	....	....	....	157	....	....
Canal	..	....	1	270	33	....	....
Canfield Ranch	..	....	....	....	1	....	....
Coalinga	10	17	7	12,566	886	....	5
Cole's Levee	1	4	1	1,332	22	....	....
Edison	1	1	1	170	95	....	....
Elk Hills	..	....	....	....	194	....	....
Fruitvale	..	1	....	....	169	....	1
Greeley	1	5	1	1,325	30	....	1
Kern River	..	1	1	3	1,560	....	3
Kettleman Middle Dome	..	....	....	....	....	....	....
Kettleman North Dome	3	8	1	263	262	....	....
Lost Hills	..	....	2	57	350	....	....
McKittrick	1	2	1	140	206	....	....
Midway-Sunset	2	4	4	356	2,627	1	1
Mountain View	..	....	....	....	185	....	3
Mount Poso	..	1	....	....	280	1	....
Paloma	1	1	1	1,900	2	....	....
Rio Bravo	5	6	3	4,019	53	....	....
Round Mountain	..	....	1	52	220	....	....
Strand	..	....	....	....	9	....	....
Ten Section	4	4	1	1,978	51	....	....
Tupman	13	13	3	4,477	12	....	....
Wasco	..	2	....	....	10	....	....
Wheeler Ridge	..	1	....	....	34	....	....
Group No. 2							
Capitan	..	....	....	....	44	....	....
Elwood	..	....	....	....	74	....	....
Rincon	..	1	2	1,076	64	....	....
San Miguelito	1	1	....	....	20	....	....
Santa Barbara	..	....	....	....	20	1	2
Santa Maria	..	....	2	2,025	168	....	2
Santa Maria Valley	4	....	....	....	143	....	....
Summerland	..	1	....	....	8	....	2
Ventura Avenue	6	12	5	6,907	317	....	....
Ventura-Newhall	1	11	3	1,635	572	3	1
Watsonville	..	....	....	....	7	....	....
Group No. 3							
Brea-Olinda	..	....	....	....	354	....	....
Coyote—East	2	3	1	550	82	....	....
Coyote—West	..	....	....	....	60	....	....
Dominguez	2	5	3	2,411	191	....	....
El Segundo	..	....	....	....	44	....	1
Huntington Beach	2	4	2	487	527	1	3
Inglewood	..	1	....	....	216	....	....
Lawndale	..	....	....	....	5	....	....
Long Beach	3	5	1	26	1,217	....	5
Los Angeles-Salt Lake	..	....	....	....	103	....	....
Montebello	..	4	1	135	347	....	....
Playa Del Rey	..	....	....	....	158	....	3
Potrero	1	1	1	50	19	....	1
Richfield	..	1	....	....	304	....	....
Rosecrans	5	8	2	1,715	158	....	....
Santa Fe Springs	..	....	....	....	578	....	....
Seal Beach	..	....	....	....	120	....	1
Torrance	..	....	....	....	689	2	13
Whittier	..	1	1	55	38	....	....
Wilmington	10	9	17	28,480	842	....	....
Miscellaneous Drilling	10	30	....	....	....	4	....
Group No. 4—Gas Fields							
Buena Vista Lake	..	....	....	....	1	....	....
Buttonwillow	..	....	....	....	5	....	....
Chowchilla	..	....	....	....	....	....	....
Delano	1	1	1	Gas	13	....	....
Dudley	..	....	....	....	....	....	....
Fairfield Knolls	..	....	....	....	....	....	....
Goleta	..	....	....	....	....	....	....
Marysville Buttes	..	....	....	....	3	....	....
McDonald Island	..	....	....	....	5	....	....
Rio Vista	1	1	....	....	25	....	....
Semi-Tropic	..	....	....	....	....	....	....
Tracy	..	....	....	....	4	....	....
June	92	175	73	75,475	15,107	13	48
May	115	190	90	90,680	15,141	15	21
Decrease (*Increase)	23	15	17	15,205	34	2	27*

CAN AN OIL STOP PING?

Asst. Harbor Mgr. Kremmel didn't think so...

He was all set to have his valves ground until he talked to Oilman Giest

"When my 1935 Ford V-8 reached 34,000 miles," he writes, "a very clear ping developed, I thought it meant a valve grind or a reconditioned engine. But I met your local manager, Henry Giest, and he induced me to try Triton Motor Oil.

"I did, and after 3,000 miles the ping disappeared completely. The car developed pep, and the head didn't have to be touched. This experience proves to me that Triton really does change ping to purr." —**B. C. KREMMEL,** *Auditor-Asst. Mgr. Port of Willapa Harbor, Pacific County, Wash.*

Mr. Kremmel's experience is typical. Thousands of Pacific Coast motorists have learned that Triton cuts repair bills—makes it possible for motors to operate with more efficiency—because it *keeps an engine clean.*

It does this because it is refined by Union's patented propane-solvent process—a process that produces a 100% PURE paraffin-base oil—PURE lubricant. In fact, Triton is so *pure* it deposits practically no new carbon—*actually allows your motor to burn away old carbon left by other oils.*

That's why we say Triton changes *ping* to *purr.* It gives you the benefit of 100% pure paraffin-base lubrication—the finest money can buy—PLUS freedom from excessive carbon.

Why not try Triton next time? Stop at any Union Oil service station or Dealer and ask for Triton, the motor oil that changes *ping* to *purr!*

UNION OIL COMPANY

1890, INDEPENDENT — 1940, STILL INDEPENDENT

LAUGH THIS OFF

According to **W. W. Orcutt**, leading authority on the subject, the presence of petroleum in California was first discovered by Professor Silliman when he was sailing along the coast and recognized the smell of the refineries.

Since that time the oil business has grown until its products are being used in almost every known industry. For example, **Phil Magruder** declares you can even get a solvent now that will take a girl off your hands.

And **Elsie Miller** says before she was married she wasn't making expenses, but now she is making lots of them.

Which recalls the thoughtful rousty who taught his intended to play solitaire so that after the wedding she wouldn't get lonesome at nights.

Roy Somers next recites a story of two oil workers at a boarding house, who were debating what to do, when one of them burst forth with this clever suggestion: "Let's toss up a coin, and if it comes down we'll go out for a drink. If it don't come down we'll stay home and start a savings account."

And says the service station salesman, ambiguously, "Lady, with that map you will never go wrong."

On the subject of salesmanship, **Art Stewart** has a very effective slogan, to-wit, "When business gets bad, go hunting—new business."

It's a funny thing, by the way, that the merchant who is kind enough to place the good strawberries on the top of the box so you won't have to hunt for them is always looked on with suspicion.

Whereupon **Ron Smith** swears that a Fullerton couple of his acquaintance are starting their baby on Martinis so the little fellow will acquire a taste for olives.

And **Rodney Hecox** informs us that a gadget has been developed with which it is possible to distinguish between a dust storm, and **Frank Spurlock** in a sand trap.

Rod also points out that the Battle of Bunker Hill was not a Standard Oil Company golf tournament.

Which reminds us that they are subdividing another of **Roger Duke's** divots.

Now, **Bill Andrews** comes telling us of the conscientious motorist who got oiled every two hundred miles.

And a significant fact that science has never been able to explain is that all automobiles, regardless of price, smell the same.

On the other hand, **Ed Dryer** has never been able to understand why, if you cut people by ignoring them you can't cut the lawn the same way.

Ed further contends that the only sure way to keep boilers from smoking is to shut off the fires.

Changing the subject here, a local doctor says that the laundry does not destroy all the germs that may be on your garments. Maybe not, but it makes the little beggars so mad they chew all the buttons off.

And did it ever occur to you that the greatest piece of undeveloped territory in the State of California lies right under your hat?

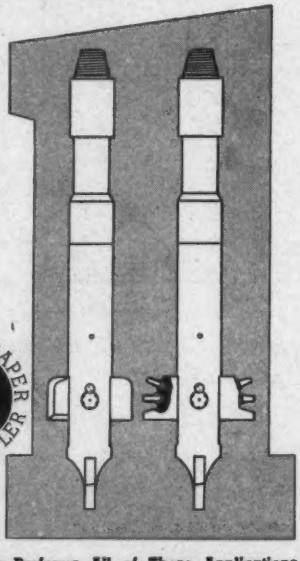
With which few well worn remarks we leave you again to your own devices. Remember, many a guy with dancing in his blood has also had poor circulation so that it never got to his feet.

And time may be a great healer but it is certainly not a beauty operator.

HOW MANY TIMES

HAVE YOU NEEDED A TOOL FOR:

- ★ Cutting Out Sections of Drillable Pipe
- ★ Enlarging Holes for Casing
- ★ Enlarging Holes for Gravel Packing
- ★ Bottlenecking for Cement Jobs
- ★ Cleaning-Up Oil Sands
- ★ Straightening Crooked Holes
- ★ Setting Liners
- ★ Water Shut-Off Tests



Send for Baker Broadcast No. 19
See Pages 252 to 261 of the 1940 Composite Catalog.

The Baker Rotary Wall Scraper Performs All of These Applications *Safely — Efficiently — Economically* . . . In Addition It is Also ★"*Two Tools in One*" . . . As by merely changing blades converts the Wall Scraper into a Baker Wall Sampler . . . an efficient device that takes actual cores from the side walls of any uncased hole.

For Complete Details Contact the Nearest Baker Office or Representative.

BAKER OIL TOOLS, INC.

MAIN OFFICE AND FACTORY: 6000 South Boyle Avenue
Box 127, Vernon Station, Los Angeles, California
CENTRAL DIVISION OFFICE and FACTORY: 6023 Navigation Blvd.
Box 3048, Houston, Texas
EXPORT SALES OFFICE: 19 Rector Street, New York, N. Y.

Natural Gasoline Plant Operating Safety

Discussion of Overlooked Factors

By G. N. Hile, Standard Oil Co. of Calif.

Read by Mr. G. M. Liljenstein of Standard Oil Co. of California before regular July monthly meeting of California Natural Gasoline Association.

Safety in natural gasoline plant operations has received more thought by this group, and has been more thoroughly reviewed, than any other one phase of our work. However, the discussion to follow will present a viewpoint that, I believe, is novel and will inspire thought along a somewhat different line. Frequently, after a concerted safety drive, an operating man will be heard to remark, "These improved designs are very fine, and measures taken will promote safety, but if you fellows really want to prevent accidents in my particular plant, you should do this—." This operator will then, if sufficiently inspired, point out surprising things about every day operation which have been overlooked by the conventional safety survey. It is the viewpoint of this man that will be adopted in the subsequent discussion.

It is proposed to consider an average operating plant which has been built sometime within the last 15 years, and not the theoretically perfect plant. It is further proposed to start with the intake scrubber of such a plant, and briefly survey the various units through the eyes of the critical operator.

Let us first consider a vacuum intake scrubber. Figure No. 1 shows a typical intake scrubber installation with all the safety devices usually considered adequate. The safety engineer may well ask the operator, "What is wrong with this hook-up?" Our critical operator might in turn point to the following possible sources of trouble:

1. The safety valves should be directed to discharge away from, rather than toward, a source of ignition, and they should both be installed so that the recoil from their discharge cannot loosen or unscrew the valve.

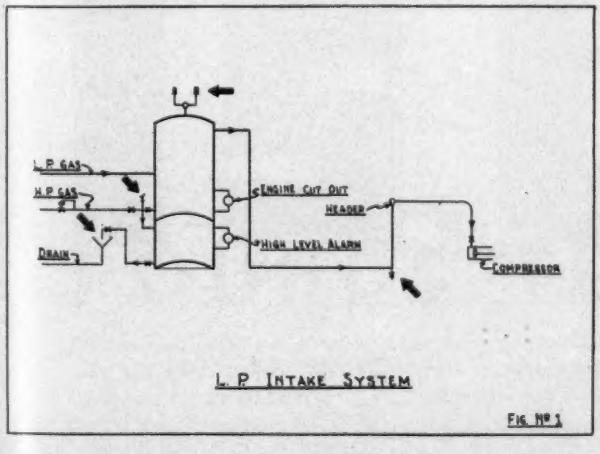
2. The lower compartment, as well as the upper compartment, should be protected with a safety valve.

3. Means should be provided to safely handle plant vapors when the engines go down under such conditions that plant vapors will "pop". In the typical plant, vapors are released at the stripper or gasoline separator when the vapor compressor goes down. This is particularly hazardous as these vapors are heavier than air and may be widely distributed throughout the plant. To prevent this occurrence, a back pressure regulator may be installed in the vapor system to open at a pressure below that of the safety valves and to discharge to the plant stack or to the low pressure field intake system.

4. There should be means of removing liquid from the low points in lines connecting the intake scrubber to the compressors. These low places frequently accumulate condensate which may be drawn into the compressor upon an unusually heavy surge of gas, or they may be filled with liquid by a carryover from the scrubber. In starting up a plant, or in putting an idle line into service, bleeders at low points become very vital to safe operation. Considerable care must be exercised, however, to install these bleeders so that they may be safely operated. The operator should never be required to place himself in such a position that he would be caught in a flash that might occur at the point of discharge. Discharges should be directed so as to blow clear without impingement against the ground or any structure.

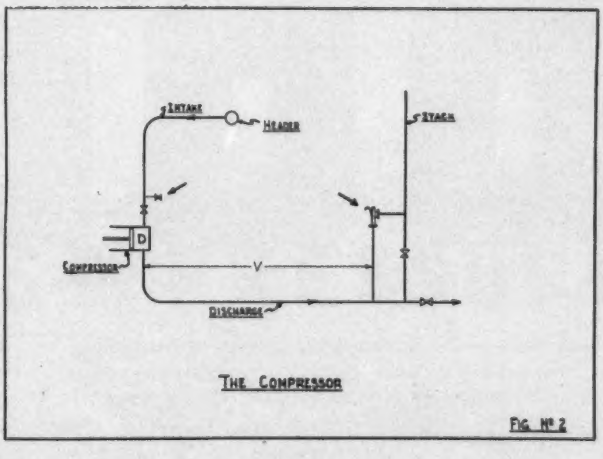
This brings us to a consideration of the compressor and its hook-up. Figure No. 2 shows a typical compressor installation. Presuming that all moving parts are adequately guarded and that all lubrication points are safely accessible, our operator may still point an accusing finger at the safety valve installation. To adequately protect a cylinder against possible excess pressures, the safety valve must be capable of handling the output of the cylinder without imposing such a pressure on the cylinder. To provide this protection, several factors must be considered: First, the maximum safe pressure which may be imposed on the cylinder and the maximum possible intake pressure must be established. The manufacturer's ratings are usually dependable for determining the maximum allowable pressure. Field conditions must be considered in establishing the maximum possible intake. This pressure will usually be found to be considerably above normal operating pressures. Knowing the maximum intake and discharge pressures that may occur, it is possible to calculate the volume of gas that the safety must handle and to select the size valve required. In this selection, manufacturer's ratings may be safely used only after having established their dependability by test.

Having selected an adequate valve, care must be exercised to see that this capacity is not impaired by the method of installation. In this regard, two facts are of major importance: First, the lines to and from the valve must be of adequate size and the discharge must be located so as to create no hazard. Second, the first valve in the compressor discharge must be located far enough from the compressor to allow the safety valve to operate smoothly. If the ratio of the volume of this line to the dis-



L. P. INTAKE SYSTEM

FIG. Nº 1



THE COMPRESSOR

FIG. Nº 2

placement of the compressor is less than 1.25, a material reduction in safety valve capacity due to chattering can be expected. Even with an adequate valve properly installed, the matter of test and maintenance must be taken care of before protection can be assured. A routine practice of operating the valve by increasing the pressure to the popping point should be established. Usually such a test once a month is sufficient. However, when using feather guided valves on a gas of a corrosive nature more frequent tests will be found necessary.

Figure No. 2 illustrates a compressor hook-up which embodies a rather active hazard. Very frequently an installation will be made with the intake valve immediately above the compressor and a considerable run of line from the valve to the header. When the unit is down and the intake valve closed, this forms an excellent pocket for the accumulation of condensate which, if drawn too quickly into the cylinder, could cause serious damage. Such pockets should be eliminated or adequate safe means provided for clearing all possible liquid from above intake valves before they are opened.

Now, turning to the power unit, it will be found that moving parts are well guarded and lubricators are accessible, but such items as are listed below, and illustrated in Figure No. 3, are frequently overlooked:

1. Starting air systems should be adequately protected against the possibility of air compressor lubricating oil entering the system. This can be accomplished by air coolers and scrubbers or by using an entirely independent line from the air compressor to the air tanks and from air tanks to the engine. Bleeders at each unit and at all low points in the system are advisable.

Adequate provision should be made to guard against the possibility of developing hydrostatic pressure in an engine jacket should the unit be put on the line with water valves closed. This protection can be secured by using three-way vented cocks in water discharge lines, or by the use of a check valve only in the discharge line.

3. Adequate provision should be made for draining power cylinders before they are put on the line. This consideration should include the outside air passage of two-cycle engines.

4. Fuel systems should be so designed that gas is not released inside the engine room when a unit goes down. This protection can be secured by conducting air inlets outside the building or by installing automatic valves in the fuel line which are actuated by the pressure on the intake manifold.

Having covered the compressor and engine installation, our critical operator will point to an active engine room hazard which is more a matter of operation than of design.

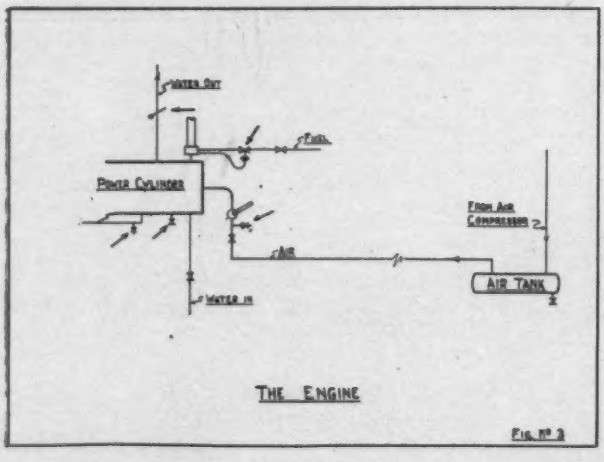
This has to do with methods of lifting heavy loads, such as cylinders and flywheels. Many of the older engine rooms are not equipped with traveling cranes and it is not uncommon to find that blocks are attached to building trusses to handle loads which put a severe strain on the building. This is quite a hazardous practice in view of the fact that building trusses are frequently already overloaded by their use in supporting gas and water lines. An entirely satisfactory method of handling heavy loads in such engine rooms has, as far as is known, not been developed. Gin-poles or tripods are sometimes used, but these are awkward to erect and difficult to handle safely in an engine room with operating equipment nearby.

Leaving the engine room, let us now consider the absorption equipment which includes pumps, intake and discharge scrubbers, absorbers, and vent tanks (See Figure No. 4). In low pressure operations, it is found that this equipment is unusually free of hazard, but that certain hazards do exist in high pressure installations which must be given consideration. Pumps of the positive displacement type must be handled with care to prevent dangerous back flows and vibrations which may be set up when the unit is put on the line against full pressure. The danger of such vibrations can be entirely eliminated by the installation of a good check valve immediately downstream from the pump discharge valve and a gradually opening bypass valve. Check valves should also be placed in oil lines adjacent to the absorber to prevent large discharges of gas into cooling towers in the event of a coil failure.

A pump hazard that frequently exists in parallel installations of high pressure pumps, either centrifugal or positive displacement, is that of exposing intake fittings of the idle pump to the full discharge pressure of the operating pump. Pumps are frequently installed with low pressure fittings on the intake; then, when the intake valve of an idle pump is closed, leakage of the discharge valve will impose discharge pressure on intake fittings.

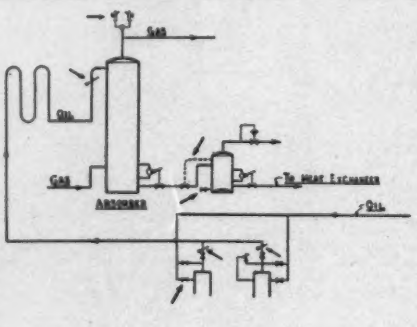
Hazards associated with absorber intake and discharge scrubbers are involved in the method of disposing of liquid accumulations. To be safe, the operator must be protected from possible flashes at at the point of discharge. If the system is entirely closed, it must be kept in mind that fittings and vessels downstream from the blowdown valve may possibly be exposed to the full pressure of the scrubber, and these lines and vessels must either be designed to safely handle these pressures or equipped with safety devices which will not only protect against hydrostatic pressure, but also against the maximum flow of gas that could occur.

The absorber itself is rather an innocent piece of equipment, yet even here the operator will point to hazards, one of which will again be our old friend, the



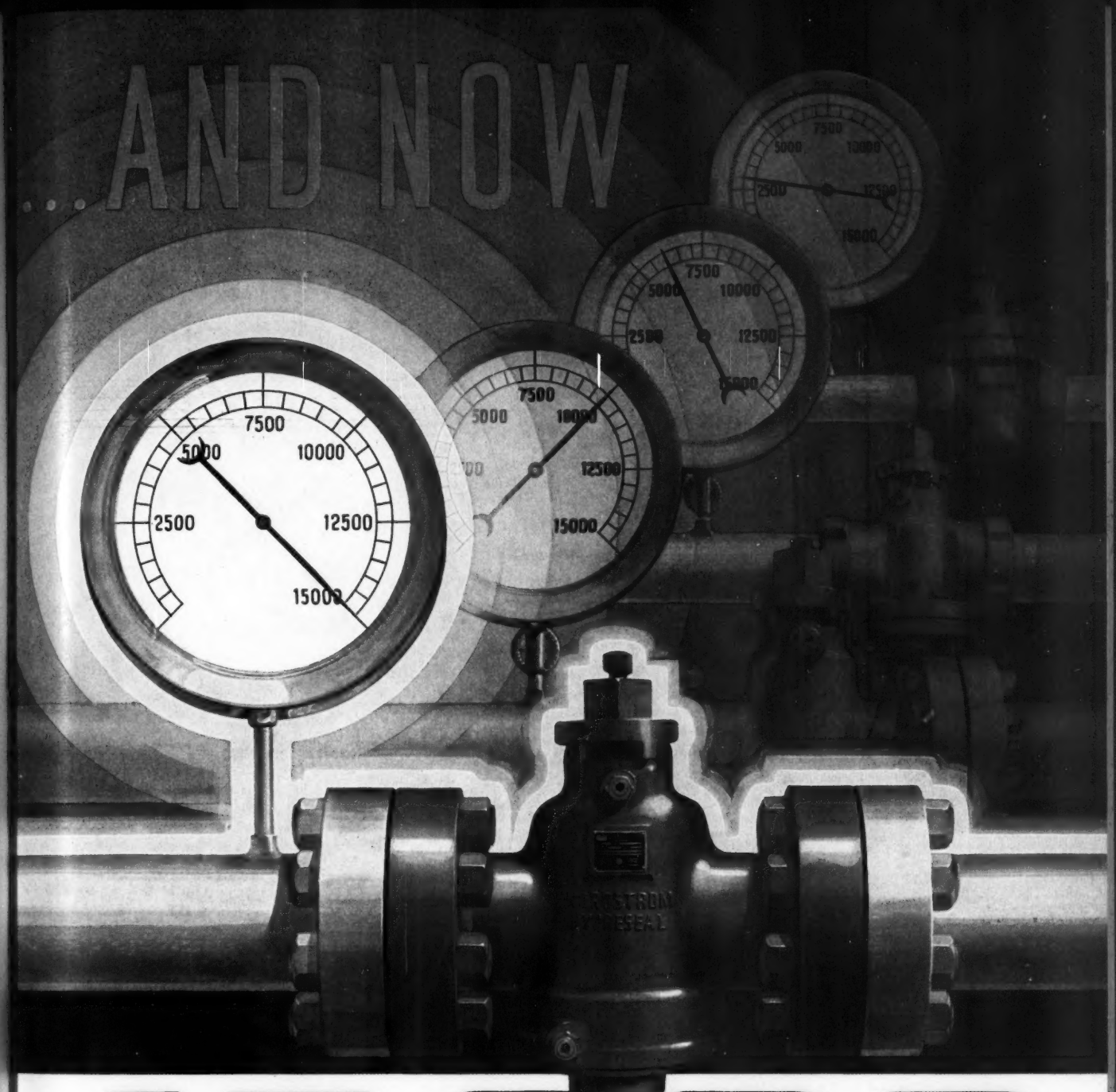
THE ENGINE

FIG. Nº 3



THE ABSORPTION SYSTEM

FIG. Nº 4



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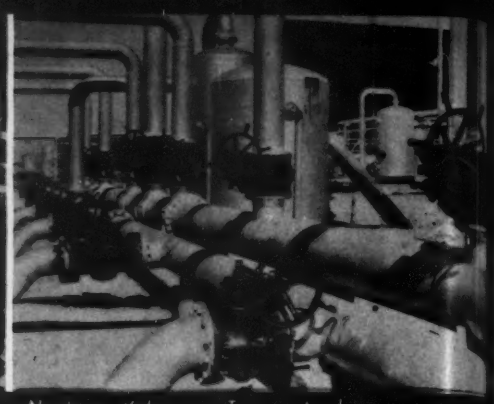
Nordstrom 10,000-lb. test Hypreseal Valves on Christmas Tree. 5000 # working pressure.

Nordstrom Valve on steam throttle as a safety valve. Assures a non-leaking line.



Nordstrom Valves in a Texas natural gasoline plant operating on very sour gas.

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Nordstrom Valves are extensively used on mud lines, manifolds, Christmas trees, boiler lines, gas and water lines, blowout preventers, repressuring systems, tank batteries, separator lines, meter settings, production and transmission lines. For working pressures up to 7500 lbs. Sizes ½" to 30". Ask for special Drilling and Production Bulletin No. V-132.

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Quickest to operate; easiest to see valve position.

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Fewest parts. Nothing to clog or trap line contents.

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"SEALDPORT" LUBRICATION
Plug lifts by positive pressure. Ports always sealed.

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Lapped by exclusive processes for precision fit.

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No protruding stems or yokes. Occupy least space.

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SPECIAL LUBRICANTS
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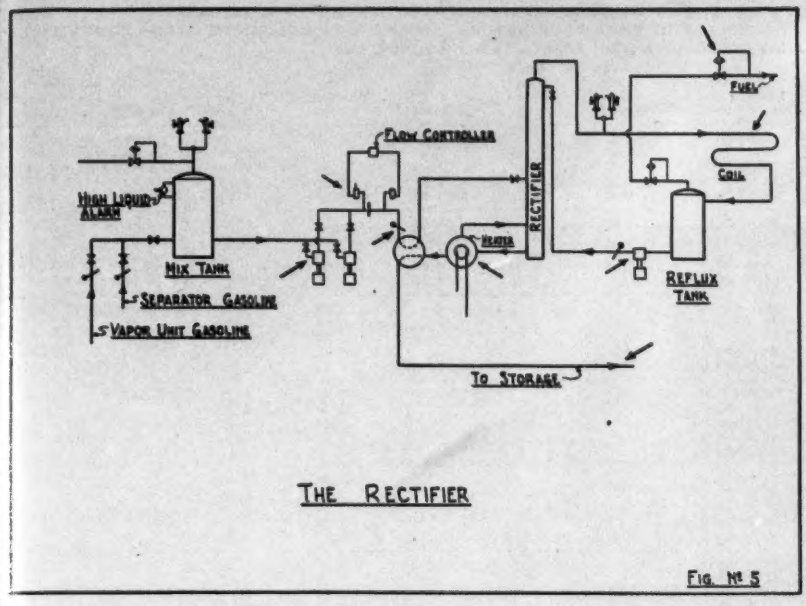

THE RECTIFIER

FIG. Nº 5

safety valve. It is not unusual to find an absorber well equipped with an adequate safety valve located at the gas outlet from the absorber, but do not be surprised if your operator says: "How on earth do you expect me to safely get up to that valve to test, check and maintain it?"

Another factor must be considered in high pressure operation: Are fittings and protective devices on the oil line from the absorber adequate to handle a wide open flow of high pressure gas through the oil lines? This can be taken care of by adequate safety valves on the cold oil vent tank, or, better still, by a shut-off regulator in the oil line actuated by the downstream pressure.

Distillation systems consisting of heat exchangers, preheaters, strippers, dephlegmators and separators in general give the operators very little trouble. Frequently, however, too little attention is given to the points of release of safety valves. It will also occasionally be found that safety valves on rerun stills and strippers are isolated when the unit is shut down for repairs. This could result in excessive pressures from leaky stem valves or tube bundles. It is very probable that our critical operator will point out that his more hazardous distillation problem occurs when putting an idle preheater back on the line. Improper sequence in operating oil or steam valves can result in hydrostatic pressures which may rupture or seriously weaken the equipment or connected valves. It is customary to thoroughly advise the operator of the proper procedure, but protective devices are not commonly used. The leaky preheater presents additional problems as care must be exercised in the disposal of oil which may have leaked through to the steam side of the tubes. Preheater condensate is usually returned to the hot well and unless adequate means are provided to safely clear the steam side of a preheater before it is put on the line, rich oil and vapors may find their way to the hot well.

This brings the matter of adequately protecting return water systems to our attention. A typical steam condensate return water system would normally operate at a pressure below 50 lbs., and it might therefore be assumed that equipment having a working pressure of 125 lbs. would be adequate and that a safety valve of small capacity would give the necessary protection. However, in such systems there are several points at which gasoline or oil may enter the condensate lines. From these sources it is possible to develop excessive pressures and to produce comparatively large quantities of vapors. These possibilities should be given full consideration in providing protection for return water systems.

High pressure rectifiers have received more attention and care in design than other units of the plant. However, here too, operating hazards will develop which, although similar to those previously discussed, warrant further consideration. Figure No. 5 illustrates a typical installation which incorporates the usual safety devices. Hazards which still may be found are:

1. Inadequately protected rectifier feed and reflux pumps. These pumps and the connected intake and discharge fittings should be designed to stand the shut-in head of the pump, and in this connection it must be remembered that the shut-in head is that fixed by pump design plus the suction pressure. In the case of the reflux pump, the suction pressure is usually rectifier pressure.

2. Inadequately designed lines and fittings from the rectifier to storage. These lines and fittings should be able to safely handle rectifier pressure.

3. Inadequately designed fittings in the rectifier residue line down-stream from the rectifier pressure control regulator.

4. Low pressure heads of tubular equipment not safeguarded against possible excessive pressure generated by leaks in the tubes.

5. Differential control regulators hooked into water systems.

6. No means of quickly bleeding down the column or reflux coils should a coil break.

7. Insufficient check valves to prevent dangerous backflows.

Let us now consider the storage tanks. The storage tanks have long been one of the major hazards in a gasoline plant, and a great deal has been done to protect this equipment from earthquake shock and to provide adequate relief in the case of fire. Presuming these things are taken care of, we will still find a number of items which should be given attention if operations are to be entirely safe. For example: Are the ball checks of gauge cocks operative; are safety valves accessible, and are means provided for periodically checking these valves; are gauging platforms convenient and safe; will the suction side of the shipping pump stand any pressure that could be imposed on it by liquid backing up from the shipping line; will discharge fittings withstand the shut-in head of the pump; are water line connections positively blanked off; and are tanks adequately protected against overfill and excessive hydrostatic pressure? This last point has received much attention and efforts have been made to solve the problem by the use of reducing regulators and bursting discs. While these devices are undoubtedly a step in the right direction, it is felt that they do not not entirely solve the problem.

We still have the boiler plant to check over. The present day plant will be found to be well equipped with automatic fuel control and with high and low liquid alarms. It will be equipped with a fire box stuffing system and adequate, well cared for safety valves. The most common items of criticism to be found here will be the location and design of the hot well and the accessibility of steam valves. It will frequently be found that the problem of climbing around hot valves and lines on a boiler to reach the valves which must be operated in putting a boiler on or off the line requires the skill of a mountain climber. Adequately designed accessible

platforms are essential to safe boiler operation.

Considering the plant as a whole, the critical operator will call attention to such additional items as are listed below as among the factors with which he must contend in his daily routine:

1. Unnecessarily complicated piping which has resulted from changes in equipment and operating conditions.
2. Dead lines.
3. Inaccessibility of sprays on cooling towers.
4. Pits which must be entered to blow drips or attend to pumping equipment.
5. Congested passageways.
6. Unguarded vertical ladders.
7. Non-uniformity of compressor and engine guards, steps and platforms.

The foregoing discussion has attempted to point out hazardous situations that exist in the normal operating plant even after great care has been exercised in design and installation of modern safety devices. It is these little items which so frequently cause the operator trouble and are responsible for serious operating irregularities. It is hoped that the points discussed will serve as an inspiraton for additional thought along similar lines and will result in additional consideration of the operator's daily problems.

Merco Nordstrom Issues New Bulletin

Illustrated with approximately 100 photos of lubricated plug valve applications in drilling and production, a new bulletin has been issued by Merco Nordstrom Valve Co. Detailed cross-sectional views of various types of valves for oil and gas field services are shown, including the rectangular and round opening 10,000-lb. test valves. Operating data regarding each type of valve is included as well as descriptive material of the processes of manufacture.

Of the several score of interesting installation views, valves are shown in service on boiler lines, gas and water lines, mud lines, blowout preventers, christmas trees, repressuring system, tank batteries, separator lines, manifolds, meter settings and transmission lines.

The bulletin is beautifully printed on enameled stock and has a cellophaned cover. Copies may be obtained by writing to Merco Nordstrom Valve Co., 400 Lexington Ave., Pittsburgh, Pa. Ask for Bulletin No. V-132.

Washington observers believe that the big anti-trust suit against the oil industry to seek divorcement of marketing and pipe line operations has been side tracked in view of the emergency defense preparations.

GENERAL PETROLEUM CORPORATION OF CALIFORNIA
SCHEDULE OF PRICES FOR NATURAL GASOLINE PURCHASES IN FIELDS INDICATED
***Prices in Cents per Gallon*—Effective 7 a.m.—August 2, 1940.**

Vapor Pressure Lbs./sq. in. Reid/100°F	Athens Santa Fe Springs	Long Beach Signal Hill	Richfield	Wilmington	Ventura Avenue	Capitan	Rio Bravo Kettleman Hills
15.0—15.9	5.25	5.25	5.25	5.25	5.00	4.57	4.75
16.0—16.9	5.17	5.17	5.17	5.16	4.92	4.50	4.66
17.0—17.9	5.08	5.09	5.09	5.07	4.82	4.42	4.58
18.0—18.9	5.00	5.01	5.01	4.98	4.73	4.35	4.49
19.0—19.9	4.93	4.92	4.94	4.89	4.64	4.27	4.40
20.0—20.9	4.87	4.83	4.86	4.80	4.55	4.19	4.32
21.0—21.9	4.81	4.77	4.77	4.71	4.46	4.13	4.23
22.0—22.9	4.77	4.70	4.70	4.62	4.38	4.05	4.15
23.0—23.9	4.73	4.64	4.63	4.53	4.28	3.99	4.06
24.0—24.9	....	4.55	4.55	4.44	4.19	3.91	3.98
25.0—25.9	....	....	4.31	4.08	3.83	3.68	3.63
26.0—26.9	....	....	....	3.96	3.71	....	....
27.0—27.9	....	....	....	3.84	3.58	....	....
28.0—28.9	....	....	....	3.74	3.47	....	....
29.0—29.9	....	....	....	3.63	3.39	....	....
30.0—30.9	....	....	....	3.55	3.32	....	....
31.0—31.9	....	....	....	3.49	3.27	....	....
32.0—32.9	....	....	....	3.44	3.23	....	....
33.0—33.9	....	....	....	3.41	3.19	....	....
34.0—34.9	....	....	....	3.38	3.17	....	....
35.0—35.9	....	....	....	3.36	3.16	....	....
36.0—36.9	....	....	....	3.34	3.15	....	....
37.0—37.9	....	....	....	3.31	3.13	....	....
38.0—38.9	....	....	....	3.29	3.11	....	....
39.0—39.9	....	....	....	3.27	3.09	....	....
40.0—40.9	....	....	....	3.26	3.08	....	....
41.0—41.9	....	....	....	3.24	3.05	....	....
42.0—42.9	....	....	....	3.22	3.05	....	....
43.0—43.9	....	....	....	3.20	3.03	....	....
44.0—44.9	....	....	....	3.19	3.01	....	....
45.0—45.9	....	....	....	3.17	2.99	....	....
46.0—46.9	....	....	....	3.14	2.97	....	....
47.0—47.9	....	....	....	3.12	2.95	....	....
48.0—48.9	....	....	....	3.11	2.93	....	....
49.0—49.9	....	....	....	3.09	2.92	....	....
50.0—50.9	....	....	....	3.07	2.91	....	....
51.0—51.9	....	....	....	3.05	2.89	....	....
52.0—52.9	....	....	....	3.03	2.87	....	....
53.0—53.9	....	....	....	3.02	2.86	....	....
54.0—54.9	....	....	....	3.00	2.83	....	....
55.0—55.9	....	....	....	2.98	2.81	....	....
56.0—56.9	....	....	....	2.96	2.80	....	....
57.0—57.9	....	....	....	2.95	2.79	....	....
58.0—58.9	....	....	....	2.92	2.77	....	....
59.0—59.9	....	....	....	2.90	2.75	....	....
60.0—60.9	....	....	....	2.88	2.74	....	....
61.0—61.9	....	....	....	2.87	....	....	....
62.0—62.9	....	....	....	2.85	....	....	....
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64.0—64.9	....	....	....	2.81	....	....	....
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66.0—66.9	....	....	....	2.77	....	....	....

UNION OIL COMPANY OF CALIFORNIA

Vapor Pressure Lbs./sq. in. Reid/100°F.	Richfield	Huntington Beach	Long Beach	Brea	Santa Fe Springs	Dominguez	Rosecrans	Montebello	Playa del Rey	Santa Maria	North Belridge	Rio Bravo	Kettleman Hills
15—15.9	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.00	4.75	4.75	4.75
16—16.9	5.16	5.15	5.16	5.16	5.16	5.16	5.16	5.16	5.17	4.91	4.67	4.66	4.67
17—17.9	5.08	5.06	5.07	5.08	5.07	5.07	5.07	5.07	5.08	4.82	4.58	4.56	4.58
18—18.9	5.00	4.97	4.98	4.99	5.01	4.98	4.97	4.98	5.00	4.74	4.50	4.47	4.49
19—19.9	4.91	4.87	4.88	4.90	4.95	4.89	4.89	4.89	4.94	4.65	4.41	4.38	4.41
20—20.9	4.83	4.82	4.79	4.82	4.90	4.81	4.80	4.79	4.89	4.56	4.33	4.28	4.32
21—21.9	4.74	4.77	4.74	4.74	4.85	4.75	4.75	4.71	4.83	4.48	4.26	4.19	4.24
22—22.9	4.66	4.72	4.69	4.65	4.80	4.70	4.70	4.65	4.78	4.43	4.19	4.10	4.15
23—23.9	4.61	4.67	4.63	4.56	4.75	4.65	4.65	4.58	4.74	4.37	4.12	4.01	4.07
24—24.9	4.55	4.62	4.58	4.47	4.70	4.60	4.60	4.52	4.71	4.32	4.05	3.91	3.98
25—25.9	4.50	4.56	4.53	4.43	4.70	4.57	4.59	4.46	4.70	4.26	3.98	3.82	3.90
26—26.9	4.45	....	4.48	4.38	4.69	4.57	4.58	....	4.68	....	....	....	....
27—27.9	4.39	....	4.43	4.33	4.68	4.55	4.58	....	4.66	....	....	....	....
28—28.9	4.34	....	4.42	4.29	4.66	4.54	4.57	....	4.65	....	....	....	....
29—29.9	4.32	....	4.41	4.26	4.64	4.54	4.56	....	4.63	....	....	....	....
30—31.9	4.30	....	4.39	4.24	4.63	4.51	4.55	....	4.59	....	....	....	....
32—33.9	4.29	....	4.36	4.22	4.59	4.49	4.54	....	4.54	....	....	....	....
34—35.9	4.27	....	4.34	4.19	4.55	4.47	4.52	....	4.47	....	....	....	....
36—37.9	4.23	....	4.31	4.16	4.51	4.40	4.49	....	4.39	....	....	....	....
38—39.9	4.17	....	4.26	4.12	4.46	4.27	4.42	....	4.27	....	....	....	....
40—41.9	4.08	....	4.21	4.07	4.42	4.13	4.31	....	4.13	....	....	....	....
42—43.9	3.99	....	4.13	4.01	4.37	3.99	4.17	....	3.99	....	....	....	....
44—45.9	3.90	....	4.05	3.94	4.31	3.84	4.02	....	3.84	....	....	....	....
46—47.9	3.81	....	3.95	3.86	4.24	3.69	3.87	....	3.70	....	....	....	....
48—49.9	3.71	....	3.86	3.77	4.17	3.55	3.72	....	3.56	....	....	....	....
50—51.9	3.62	....	3.76	3.66	4.08	3.41	3.58	....	3.42	....	....	....	....
52—53.9	3.54	....	3.66	3.52	3.98	....	3.43	....	....	....	....	....	....
54—55.9	....	....	3.56	3.39	3.86	....	....	....	....	....	....	....	....
56—57.9	....	....	3.47	3.26	3.74	....	....	....	....	....	....	....	....
58—59.9	....	....	3.37	3.13	3.61	....	....	....	....	....	....	....	....
60—61.9	....	....	3.27	3.00	3.47	....	....	....	....	....	....	....	....

Field Development

San Joaquin Valley

Round Mountain Tests Active

Bottomed at 1562 ft. in good looking Vedder oil sand, Crestmont Oil Co.'s Staley No. 7 is the first of four Round Mountain wells to reach the pay sand. Located in a productive area in the southeast corner of sec. 8,28-29, the well is standing with 6⅝ in. casing cemented over the sands at 1524 ft. Electric logging showed the sand to have increasing permeability and porosity down hole.

Trico Oil & Gas Co., drilling Coffee No. 1 at the untried north end of a fault block near the center of section 8, had reached 415 ft. after one days digging. This well is on a sub-lease from Crestmont which controls all but 80 acres of the section, and which produces at the south end of the same closure.

A mile and a half west of the Trico well, D. G. Vedder is preparing to drill California Lands No. 1 near the northeast corner of sec. 12,28-28. This project is east of the west branch of the Round Mt. fault, on a 40 acre parcel which has never been drilled.

Spartan Drilling Co. is drilling at 1100 ft. in sec. 32,28-29 seeking a southerly extension of the main field.

In sec. 9,28-29 F. D. Goody, well known drilling contractor, is associated with Bernard Le Mohn, et. al., in drilling Olcese No. 9-9. Located in the southwest quarter of the section, a little more than a quarter of a mile east of the Crestmont Staley wells, the try was last reported in green clay, thought to be Walker, at 1470 ft. It appears that the Vedder is not present in this fault block.

Tide Water Drills Vedder Zone Well

KCL No. E-27-7, Tide Water Associated Oil Co.'s latest Strand field effort, is drilling below 5200 ft. Located in the center of Stevens zone production in sec. 7,30-26, the current well is headed for the Vedder zone, never before tested in this area, but productive in adjacent Valley floor fields. The deeper horizon should be topped 3500 ft. below present production.

Rio Bravo Outpost Coring For Vedder

Riggs No. 1, Superior Oil Co.'s Rio Bravo outpost, located a mile northwest of production was delayed by a fishing job while coring for the Vedder sand at 12,325 ft. Already much lower than preceding Rio Bravo wells the try is thought to correlate approximately 1100 ft. lower than the field average. This opinion is predicated upon sand bodies found at 11,500 ft. and which were unofficially classed as Olcese, a section of the upper Temblor, while the objective sands are found in the middle Vaqueros. The marked difference of position in the geologic column has given rise to wide speculation within the industry as to whether the difference is made by steeply dipping beds or by a fault of major displacement. Since Superior is holding

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SAN JOAQUIN VALLEY WILDCATS

Area	Well	No.	Section	Depth	Status
	Fresno County				
Cantua Creek	Logan J. E., Jr., Yearout	44	26, 16-14	9001	Abandoned
	The Texas Co., Everding	1	24, 17-15		Rig
Coalinga	Lewis, C. H.	1	18, 21-15	2298	Idle
	Section 30 Oil Co.	8	30, 19-15	1122	Drilling
	Tide Water Assoc. Oil Co., Guardian	23	2, 20-15	1803	Drilling
Jacalitos Hills	Continental Oil Co., Kreyenhagen	1	4, 22-16	8179	Drilling
Mendota	Jergins Oil Co., Cheney Ranch	1	29, 14-13	9345	Swabbing
	Kern County				
Belridge—South	Delanty & Sutton, Burneol	1	28, 28-22	2075	Drilling
	Santa Mora Oil Co.	1	10, 28-20		Material
Cantil Area	Red Rock Oil Co., Red Rock	1	13, 30-37	1700	Drilling
Devil's Den	Seaboard Oil Co., Beer	66	17, 26-19	2351	Drilling
	Trigg, H. C.	1	11, 25-18	693	Testing
Edison	Goodrum & Vincent, Inc., S.P.	6	31, 29-30	266	Drilling
Grapevine	Kern Line Oil Co.	1	19, 11-19	310	Drilling
	Richfield Oil Corp., Tejon Ranch	1	2, 10-19	7023	Drilling
Greeley—South	Superior Oil Co., Brandt	1	28, 29-26	11761	Abandoned
McKittrick	Freda Q. Oil Corp., Laymance	4	20, 30-22	1377	Pumping
Mt. Poso	Signal Oil & Gas Co., c/o Dwight G. Vedder. V-S. Glide	1	29, 27-28	2314	Completing
Round Mountain	Goody, F. D., Olcese	9-9	9, 28-29	1470	Drilling
	Spartan Drlg. Co., Hiatt	1	32, 28-29	675	Drilling
San Emigdio	Chapman, A. E. T.	1	14, 10-23	2012	Idle
Semitropic	North Kern Oil Co., Sawyer	1	16, 25-22	6620	Idle
Shale Hills	Scotia Exploration Co., Abbott	1	7, 27-19	2047	Idle
	The Texas Co., McD-Theta	1	12, 28-19	5247	Abandoned
Wheeler Ridge	Richfield Oil Corp. KCL	2	28, 11-20	5775	Drilling
	Tulare County				
Trico	Tide Water Assoc. Oil., Daniels	35	22, 24-23	11720	Drilling

back information concerning dips on the cores or on evidence of faulting, all opinions must be held subject to revision when at last the company releases the complete story.

Superior is building foundation forms for two direct offsets to the Riggs well however, and it is yet uncertain whether the activity is motivated by confidence in the test well, or by lease commitments which call for action pending the outcome of this try. The wells, Bohna No. 1 and Devine No. 1 are each located within a few hundred feet of the mystery well.

In the main body of the field Superior's Mandell No. 1 is at 11,049 ft., Osborn No. 1-1 at 10,013 ft., Rudnick No. 2 at 8327 ft. while Pasadena Realty No. 1 is at 9850 ft.

General Petroleum Corp's Caldwell No. 5, at the southerly end of the field was last reported in hard shale at 10,750 ft.

Union Oil Co., only other operator in the play, finished Kernco No. 65-34 flowing 39 gravity clean oil at a 1700 bbl. rate through a 24/64 in. bean with an estimated 2,000,000 cu. ft. of gas. Union is rigging up to drill Kernco No. 25-34 and has poured foundation for No. 47-34. The company's Kernco No. 67-34 nears productive levels and was last reported at 10,900 ft.

Texas Starts New Cantua Creek Try

Apparently feeling that it's S. P. No. 1, which produced a small amount of high gravity condensate and gas in the Cantua Creek district, was located unfavorably on structure. The Texas Co. is building rig to drill Everding No. 1 near the center of sec. 24,17-15. The current try is located a few hundred feet southeast of the small recently obtained production.

Two Active in Mt. Poso Area

Dwight G. Vedder, operating in conjunction with the Signal Oil & Gas Co., is completing V-S-Glide No. 1 in a new productive area near the south quarter corner of sec. 29,27-28.

When last reported the well was rigging to pump with bottom in Vedder oil sand at 2314 ft. and 8⅝ in. water string cemented just over the sand body at 2297 ft.

Kern Line Spuds Grapevine "Cat"

With a drilling site marked out by an electric sounding device near the center of sec. 19,11-19, on the plains north of Grapevine and just east of the Ridge Route highway, Kern Line Oil Co. spudded and drilled well No. 1 to 310 ft. where 13⅜ in. surface casing is standing cemented.

While the objective sands are thought to be near the 6000 ft. level, company officials have announced that the hole will be carried to 8000 ft. if necessary to thoroughly try the location. Contour maps drawn from interpretations of the electrical readings indicate a completely closed structure of considerable extent. The value of this type of field exploration will be measured in part by the findings on this apparently complete closure.

Jergins to Re-Swab Mendota Wildcat

Failing to pull liner which collapsed at 6700 ft. and with a stand of drill pipe and bit stuck in the top of the liner, Jergins Oil Co. is running tubing to resume swabbing Cheney Ranch No. 1.

Located in sec. 29,14-13 in the Mendota area northwest of Coalinga, the well was drilled to 9345 ft. finding all formations incapable of production. Plugged to the 6700 ft. mark and redrilled to approximately 7200 ft. for a fresh try on sands which might have been mudded off in the original drilling,

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the well flowed a small amount of gas and at times showed a slight disposition to blow a little condensate.

Shut in to build up pressures, and then cracked open, the well quickly blew dry during the testing, which indicates that the sand may be similar to the Eocene sands tried elsewhere in the Valley north of Coalinga in as much as it appears too fine and tight to produce commercially.

Jacalitos Hills Try Drills Below 8000 Ft.

Located just off the surface of the Jacalitos fault, in sec. 4,22-16 of Fresno county, Continental Oil Co.'s Kreyenhagen No. 1 was last reported drilling at 8110 ft. in what may be Eocene formations.

D. & B. May Drill Sites Anticline

Application has been made by the D & B Oil Co. for federal permission to drill a test well on the Sites Anticline in Colusa county. The anticline runs almost due north and south for a distance of more than twenty miles each way from the town of Sites, which is located near the west line of township 17 north and 4 west.

While many shallow wells have been drilled on the southerly end of the anticline almost no drilling has been done north of the city. The only test in recent years having been made by Continental Oil Co. in 1925, when it carried a well to 4277 ft. in the Cretaceous on sec. 31,18n-4w.

According to D & B officials the Continental well appeared capable of gas production but was never tried since the prospecting was being done in search of oil.

Seaboard Beer 66 Gets Oil Showing

Seaboard Oil Co.'s Beer No. 66, drilling in sec. 17,26-19 on a portion of Amerada Pet. Corp.'s large Beer lease, was reported at 4430 ft. in sand showing streaks of shale. A slight oil cut is said to have been noted in a sand body at 4145 ft.

The Beer lease covers the larger part of a huge structure in the Devils Den area of Kern county which is felt by many recognized experts to offer good chances that ultimately production will be obtained from one of the sands known to exist.

Many wells have been drilled in the area, some of which have shown promise but only one of which ever produced.

Shell Oil Completes Ten Section Well

With eight strings running in California, Shell Oil Co. marked up one Kern county completion for the past fortnight when KCL No. A-6-28 was finished flowing 1223 bbls. of clean 33 gravity oil. Located in sec. 28,30-26, at the southeast edge of the Ten Section field, the well was bottomed at 8220 ft. in the Stevens zone and was producing from 201 ft. of sand. Gas-oil ratio was favorable with only 890,000 cu. ft. of gas coming with the flow.

So. Belridge Test Showing Oil Colors

DeLanty & Sutton's wildcat, Trustees No. 1, in sec. 28-22 is reported to have oil colors showing on the ditch. At the time of the report the well was in sandy clay at 2070 ft.

Buena Vista Hills Try Cores Probable Stevens

Honolulu Oil Corp., drilling No. 25-P in sec. 10,32-24 near the center of the old Buena Vista Hills field, is reported to have cored hard dark shale with streaks of fine gray sand thought to be the top of the Stevens zone. Correlation in this portion of the Valley is hazy however where the deep sands are concerned. Paleontology only may be employed to classify the deposits since what are considered Stevens sands are often dissimilar in other respects.

This project is an avowed "Basement Special" since it is the intention of the company to prospect as deep as possible, unless of course production is found above the complex.

Standard Completes Wasco Deep Well

Finished at 13,130 ft. in the A-2 sand, Standard Oil Co.'s Mushrush No. 5 flowed 37 gravity clean oil at a 3052 bbl. rate through a 34/64 in. bean. Located in sec. 7,27-24 the well is the company's fifth well in the deep field, all of which have been contracted by the Rocky Mountain Drilling Co.

This field presents plenty of open hole drilling since it is Standard's practice to cement surface casing at 900 odd feet and to set a water string only when the pay is reached in the neighborhood of 13,000 ft. No protective strings are employed.

Pacific Western Oil Co., at present the only other operator in the yet small field, in drilling Meyer No. 1 has followed the casing program layed down

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by Continental Oil Co. when it discovered the field, by cementing 7 in. casing at 11,343 ft. This requires a long liner since the pay horizons are substantially the same for each well.

E. L. Cord Enters Coalinga Play

With rig erected on the 5 acre Darling property offsetting The Texas Co.'s Exeter lease in the southeast quarter of sec. 6,20-16, E. L. Cord is preparing to drill his first Coalinga Eocene Pool well. Top of the productive Gatchell sand should be approximately 7500 ft. below sea level at this point.

Superior Oil Co. is skidding in rig to drill Cagel No. B-4 in the north half of sec. 6,20-16. This will be the most northerly test yet made in the Coalinga Eocene Pool. Located on the 6900 ft. contour, the well is one location northeast of No. B-5, which flowed 30 gravity oil at a 1300 bbl. rate through a 29/64 in. bean.

Robert S. Lytle, Operator, whose company discovered the field, is running four strings in the area, while preparing sites for three more.

Standard Oil Co., completed No. 22-17F flowing 29 gravity oil through a 48/64 in. bean at a 2965 bbl. rate. The company's 62-19F nears completion at 7837 ft., while No. 44-19F is drilling at 7138 ft. and machinery is being moved into No. 71-19F.

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Walter R. Jones Dies in San Francisco

Walter R. Jones, industrial sales manager in the Pacific Coast Territory for Johns-Manville Corp., died July 16 following a brief illness.

Walter R. Jones

Mr. Jones had a very wide acquaintance among Pacific Coast industrial men, many of whom valued his judgment in the solution of operating problems, because of his knowledge of the requirements of industrial plants, especially those in the petroleum industry.

Mr. Jones, who had lived in San Francisco since his birth in 1881, graduated at St. Mary's College, and started with Johns-Manville 35 years ago, when he was a salesman in the industrial materials department. He was a member of the Johns-Manville Quarter Century Club, an honorary society made up of employes who have been with the company for more than 25 years.

Mr. Jones leaves his widow, Adelyn B., several brothers, and a sister.

Claim Oil & Gas Show In Mojave Desert Try

A minor flurry was occasioned in the desert, some twenty miles northeast of the town of Mojave, when the Red Rock Oil Co. announced striking gas showings.

Drilling with rotary equipment on sec. 13,30-37, Red Rock No. 1, is said to have found the gas at 1400 ft. and to have had oil showings at 1600 ft. When last reported the well was at 1700 ft.

Located in the center of a mining country and peopled by miners and dry land farmers, the district is said to be attracting migrants who are interested mainly in taking up the federal lands yet open to settling and for mineral permit application.

Trico Oil Test Finds Eocene Gray

Hope for oil production in the Trico gas field lapsed when Tide Water Associated Oil Co.'s Daniel No. 35 bottomed in Eocene gray sand at 11,729 ft. Located in sec. 22,24-23 at the north edge of the field, the test paralleled other deep oil tests of the area by finding all potential oil horizons barren.

Important geologic markers in the well were: Brown Shale approximately 7400 ft., Olcese 9425 ft., Vedder 10,315 ft., and Eocene sand 11,700 ft.

Here and There

CLIFTON W. JOHNSON of Richfield Geological and Scouting Department enjoyed a "double feature" vacation. On July 6 Cliff married Miss EVELYN WARD of South Pasadena and their honeymoon was spent in San Francisco. Congratulations, Mr. and Mrs. Johnson!

DANA HOGAN of Hogan Petroleum Co. and MRS. HOGAN sailed July 24 on the "Mariposa" for a vacation cruise through the South Sea Islands. Their principal port of call will be Tahiti, with return trip including Honolulu. Mr. Hogan is expected back in his office Aug. 19.

BANKLINE OIL CO. and THE NORWALK CO. announce the removal of their offices to 437 So. Hill St., Rm. 700, Los Angeles, Calif., effective, Aug. 23. Telephone MIchigan 1251.

T. W. RUSSELL, JR., is passing out the cigars. The occasion, which this Nixon Gas Lift System expert hails as practically equivalent to discovering one is a "native son," is the birth of SUE ANN RUSSELL, 7 pounds, in Los Angeles, California.

Los Angeles Basin

S. O. Rediscovers Huntington Beach

Amounting to a virtual rediscovery of the Huntington Beach field, Standard Oil Co. redrilled and recompleted its old Bolsa No. 39 flowing 823 bbls. of 29.5 gravity clean oil. Located on the flat land below the bluff at the west end of the field, the well is finished with perforations open in the Upper Ashton sand from 2900 to 2950 ft. and in the Lower Ashton zone from 3100 to 3620 ft.

A few days after the sensational performance of No. 39, Standard brought in Bolsa No. 42 in the same vicinity flowing 530 bbls. a day. The latter well is bottomed at 4783 ft., but the most potent of all sands tested before completion were between 4150 and 4250 ft. Drill stem formation tests were run on practically every foot of hole below 2550 ft.

Farther east in the Old Field, Pacific American Oil Co. is completing well No. 7 after cementing 7-in. casing at 7813 ft.

Signal Oil & Gas Co. has started work on the first two of a number of projected wells on the Bolsa Chica Gun Club property not far from Standard's big wells.

Renewing activity in the Five Points area, Clear View Oil Co. has derrick up for Williams No. 2 adjoining its No. 1 which is reputed to be pumping 75 bbls. a day. In the easterly portion of the Old Field, Huntington Signal Oil Co. and The Petroleum Co. each obtained about 75 bbls. a day in recent completions Surf Associates, Inc. and The Termo Co. each obtained good tideland wells.

Thorley Well Proves Deep Athens Oil Zone

With the presence of a productive deep zone proved by the completion of Thorley Oil Co.'s Athens 12-1, the Athens section of the Rosecrans-Athens field is scheduled for the next Los Angeles Basin drilling boom. Its highest rate of 440 bbls. a day was disappointingly low but the gravity of the product is 32 degrees API which is sufficiently high to assure its marketability. Though some engineers believe a greater zone penetration will result in more production and though possibilities of deeper horizons are good, development will probably be comparatively slow because of restrictions imposed by the city of Los Angeles and because of the clouded titles to many of the town lots in the field.

Mechanically the Thorley well is finished in what is probably the equivalent of the O'Dea zone at 8096 ft. with 7-in. casing cemented at 7850 ft. and a perforated liner landed on bottom. After two weeks, production is averaging 210 bbls. a day of clean oil through a 20/64-in. bean.

Offsetting the deep discovery well to the south, Southern California Petroleum Co. is preparing to drill its well No. 12-1A.

Two blocks south and west of the Thorley producer, Inca Oil Corp. deepened the old Howard Park No. 15 to 8359 ft., where it is preparing to test 140 ft. of oil sand.

Wilmington Leads California Activity

After nearly four years of intensive development, Wilmington still leads all California fields in point of drilling activity. Since publication of our last issue, California Oil World News Service has recorded the bringing in of seven new wells and the recompletion of six old wells after redrilling operations.

Big Terminal zone production was obtained by Union Pacific Railroad and Long Beach Oil Development Co. in high structural locations while independent operators completed satisfactory wells throughout the field. Notable in the latter group were Gremac Oil Corp. No. 7 which established a rate in excess of 1200 bbls. a day and San Rey Oil Co. Horn Comm. No. 1 whose potential was 475 bbls. Near the San Rey well in the northwest area, Barnhart-Morrow Consolidated No. 4 initialled 450 bbls. Both wells were finished at 3725 ft.

Wood-Mellon Plugs Important Wildcat

With bottom at 7498 ft. in a gray sand which is possibly the Eighth Callender zone of Dominguez, Wood-Mellon Oil Co. plugged its important wildcat back to 2800 ft. from which point the hole will be redrilled and cored through the interval 3150-3350 ft., where oil sand was indicated on electric logs and by wall samples. The well, now a joint project with Jergins Oil Co., because of its high structural position, in regard to the

LOS ANGELES BASIN WILDCATS

Area	Well	No.	Section	Depth	Status
Athens	Melrose Pet. Co.	1	12, 3-14		Rig
Castaic	Colter, R. T., Explor.	1	8, 4-17	1338	Idle
	Havenstrite, R. E., Lincoln	1	16, 4-17	6584	Drilling
	Worland C. C., Jenkins-Owens	1	18, 5-16	2785	Drilling
	Nevada Drlg. Co., Dominguez Est.	1	31, 3-13		Cellar
Dominguez, West	Wood-Mellon Oil Co., Wood	1	31, 3-13	7498	Plug to redrill
Inglewood	Vanguard Oil Co., L.A.I.	1	29, 2-14	1041	Idle
La Habra	Security Land & Water Co.	1	9, 3-10	4288	Drilling
	Union Oil Co., Sansinena	12	31, 3-10	5698	Idle
Mint Canyon	Redwood Oil Co., Mitchell	2	22, 4-15	985	Drilling
Newhall	British-American Oil Prod. Co., Edwina	1	14, 3-16	6196	Idle
	Canyon Oil Co., Sanborn	1	6, 3-16		Rig
	Consolidated Pet. Co., Needham	4	13, 3-16	4398	Idle
	Creighton Hammon Synd., C.H.	1	17, 3-16	990	Drilling
	Irene Oil Co., Kraft	1	31, 4-15		Rigging up
Palos Verdes	Rolling Hills Pet.	1	27, 4-14	6580	Cleaning out
San Fernando	Casa Grande Oil Co., Lopez-Lundy	1	1, 2-15	3785	Idle
	Continental Oil Co., Howell	2	35, 3-16	4672	Drilling
	Parry, Geo. G., Moynier-Parry	1	6, 2-14	4216	Idle
West Whittier	Cal. Pico Oil Co., Beach	1	7, 2-11	4692	Drilling
	Orange County				
Costa Mesa	Thompson, Milton N., Banning	1	9, 6-10	5625	Idle
Garden Grove	Bird & Chambers	1	31, 4-10	1250	Idle

NORTHERN COUNTIES WILDCATS

County	Well	No.	Section	Depth	Status
Madera	Blake, Thos. M., Arnold	1	22, 10s-17e	3204	Idle
Merced	Don Pedro Oil Co.	1	9, 6s-9e	1212	Drilling
Monterey	Loma Grande Oil Co., Corey	1	23, 24s-10e	1550	Drilling
	Priest Valley Pet. Co., Greve	1	22, 20s-12e	2885	Drilling
Sacramento	Bishop Oil Co., Wilmar	1	21, 4n-3e	4140	Stdg. plugged
	Standard Oil Co., Rio Vista State	1	31, 4n-3e	4366	Drilling
San Mateo	Ra-Lite Petroleum, Inc., Bell	5	16, 7s-4w	600	Drilling

Dominguez field a mile to the east, is the most interesting test drilled in the Los Angeles Basin in some time.

When six feet of oil sand was cored in the Sixth Callender zone at 6800 ft. hopes were high for a commercial find in the lower horizons, but no further showings were encountered. The upper sands are stratigraphically higher than most production found in the Basin, being tentatively assigned to uppermost Repetto the top of which is placed at 3100 ft. Only at Inglewood and in the Tar Sand at Huntington Beach is production found in Pico while at Potrero and Signal Hill (Upper Wilbur zone) commercial yields are obtained just below the Repetto contact.

New Well Finished In Aliso Canyon Field

Porter No. 14, Tide Water Associated's latest completion in Aliso Canyon, was brought in the last day of July flowing 1277 bbls. during its first 19 hours. Shut in after the initial flow test, the well was later opened up, establishing a rate of over 2,000 bbls. a day. The oil tested 23.3 gravity and the cut was less than 1.0%. Three weeks before, Tide Water Associated placed Porter No. 22 on production at a 1442 bbl. rate. The gravity in the latter well was one point lower due to its slightly lower structural position. Both are producing the 5200 ft. zone.

At the present time the company has no tools running in the field but is preparing to drill three more wells.

Coyote Development Temporarily Slowed

Development rate in the East Coyote Hot Spot has temporarily slowed pending completion of Hathaway Co.'s Johnson No. 4, now drilling at the northwest corner of Valencia and Golden Aves. If this project is a commercial success, it will be offset immediately by Graham & Loftus Oil Co. on the west and Master Petroleum Co. on the south. Other operators who will benefit by the Johnson completion are Barth Oil Producers, Kern Oil Co. and Quintuple Oil Co.

Master Petroleum Co.'s last completion, Lemke No. 2, producing the interval 4210-4245 ft., initialed over 400 bbls. but is now slowed down to around 275 bbls. of 23 gravity oil cutting one half of one per cent. Like all other wells in the area, it is on the beam.

South of the group of successful Master Petroleum wells, Bryan-Pacific Oil Co.'s Wallop No. 1 deepened to 4351 ft. but encountered gray sand and plugged back to 4115 ft.

At the northeast corner of Carolina and Golden Aves., Metro Petroleum Co. has spudded Robertson No. 1 while across the street to the south, Don Angle is planning to drill on the old Chiksan Fetterman property.

With his Juanita Yorba No. 3 on the pump for about 30 bbls. a day from the 3200 ft. Anaheim zone, Fred Garleipp is preparing to redrill the old No. 4. Located just west of the Hot Spot, the Juanita Yorba wells were originally drilled to the shallow zones in 1915.

In the Yorba Linda section of the field, Silver Star Oil Co. is preparing to drill Scott No. 1 after completing Fricke No. 3 for 50 bbls. at 2100 ft. On his Fricke property, Geo. Morgan is drilling No. 2.

Shell, Union Complete Big Dominguez Producers

Shell Oil Co. and Union Oil stole the show in recent weeks at Dominguez by bringing in big flowing wells. On the Reyes lease, jointly owned by the two major companies, Shell bottomed No. 106 at 7935 ft. and, producing the interval below 7300 ft., swabbed in for 1326 bbls. of 29 gravity clean oil, while Un-

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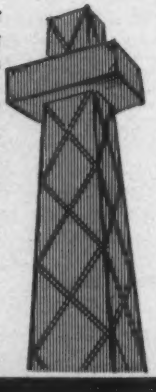

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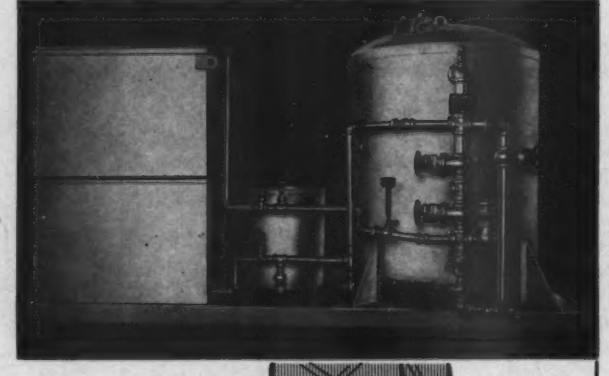

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RIVAL OF THE CLOUDS

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ion Oil Co., operating in the westerly extension, got 586 bbls in Austin No. 3 and 544 bbls. in Callender No. 77. The two Union wells were restricted by relatively small beans and are capable of larger yields.

Continuing their drilling programs, Union Oil Co. is below 5500 ft. in Callender No. 78 and is nearing completion depth in Austin No. 4 as Shell Oil Co. drills Reyes No. 108 near the 6000 ft. level. Union's Carson No. 14, delayed by water trouble, is yet being tested. Both operators are preparing to drill more new wells.

Gibraltar Drilling Co.'s outpost well at the southwest corner of Avalon Blvd. and Victoria Ave. is pumping about 30 bbls. a day from the Eighth Callender zone at 8114 ft., but may be plugged to test the Sixth Callender. R. E. Havenstrite, Operator, is rigging up to drill No. 4 on the Larronde lease.

Havenstrite Wildcat Cores Modelo Oil Sands

R. E. Havenstrite, Operator, seems now to have the best chance of discovering a new field of any wildcatter now drilling in California. With his Lincoln No. 1 in shale streaked with oil sand below 6429 ft. on the Del Valle Anticline near Castaic, competent observers give the well better than an even chance of becoming a producer.

Topping the Miocene at 5750 ft., higher than expected, Lincoln No. 1 found 30 ft. of oil sand in the first Modelo zone at 6035 ft. and entered a second zone at 6350 ft. These probably correspond with the first and second sands of the Newhall-Potrero field two miles to the south.

Irene Oil to Drill In Placerita Canyon

Irene Oil Co., headed by Hal Reynolds, is rigging up to drill a wildcat well on the Kraft property in Placerita Canyon north of Newhall. Located in sec. 31,4-15, the well is being equipped to go to 7000 ft. if production is not found higher.

2nd Howell Well Drills Below 4700

With no oil showings reported, Continental Oil Co.'s Howell No. 2 is drilling below 4700 ft. in the westerly section of San Fernando Valley. Only occasional cores are being taken to check "bugs". This well is the company's second attempt to develop production on the so-called Reservoir Anticline in the northwesterly portion of San Fernando Valley.

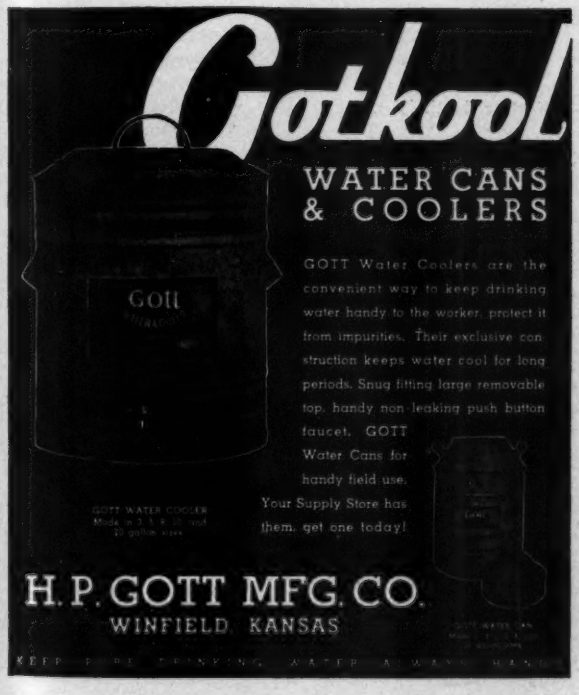
Oil Sand Found In Towsley Canyon

Creighton-Hammon Syndicate's C.H. No. 1, shallow Towsley Canyon well, is preparing to make a production test after setting casing over a 60-ft. oil sand body cored to bottom at 990 ft. The project is located in sec. 17,3-16 west of Newhall.

Inglewood Deep Test Gets Oil Showing

A ray of hope was shed on R. R. Bush Oil Co.'s Inglewood deep test when, at 8385 ft. the core barrel entered a sand body too soft for good recovery. Though only a small sample was obtained, it gave a fair ether cut and if the body continues through another core, a formation test will probably be made.

Top of the Puente was found near the 7500-ft. level and the top of the O'Dea zone equivalent was placed near 8000 ft. Chief hope for production is the possibility of there being good Mio-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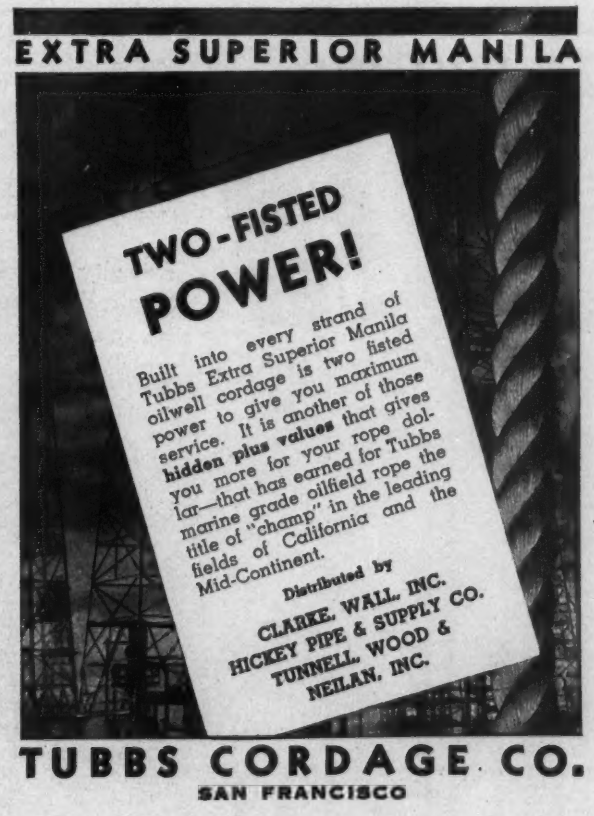
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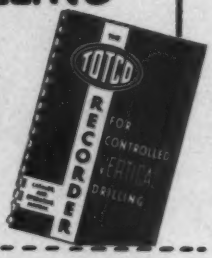

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cene sands though there is a small chance that oil may be found in the top of the schist.

The Bush well is located on the Sentous lease well down the westerly flank of the field and, if a failure, does not preclude the finding of good Miocene production in higher structural positions.

Long Beach Gets Three New Projects

Three new wells are being started in the Long Beach field by as many operators. South and west of the intersection of Willow and Lewis, M & T Oil Co. is building rig for Oil Exchange No. 3 which will be directed under the cemetery north of Willow St.

In the northwest extension area which it discovered three years ago, Hilldon Oil Co. is putting in foundations for well No. 4 on the county Flood Control Channel right of way.

Representing the major companies in the new activity is The Texas Co. which is starting Bauman No. 7 while completing Bauman No. 6 on the pump. The latter well was finished in the Brown zone with 862 ft. of perforations open to bottom at 4765 ft.

In the easterly section of the field, Oceanic Oil Co. redrilled No. 4 to 4850 ft. and recompleted for 75 bbls. while A. D. Mitchell backed up and redrilled Mun No. 1 to 3340 ft. obtained 100 bbls. Both wells are clean and are good enough to start a reconditioning program in the area.

After months of hard luck Dormax Oil Co. is completing its No. 2 well at 25th St. and Gaviota. Effective depth is 5235 ft.

Royalty Service Starts South Rosecrans Outpost

Attempting to extend the area of large production still farther south, Royalty Service Corp. is rigging up to drill No. A-W-1 at the southeast corner of Redondo Blvd. and Main St.

On Redondo Blvd. west of San Pedro St., Crest Petroleum Co. is testing Wolf No. 1 in a zone believed to be the same as that producing in the neighboring Barnsdall Oil Co.-Wilshire Oil Co. Darling Comm. No. 1. Total depth of the Crest well is 7901 ft. and casing is cemented at 7502 ft.

Chicago Oil Co. is pumping its Founders No. 1 after a small amount of clean oil was recovered by swabbing. The hole is now open between 7100 and 7300 ft. Mission Oil Co. is still trying to shut off water in its 8546 ft. Pierce No. 1.

In the prolific westerly section of the extension area, St. Anthony Oil Co. is cementing a water string in Gordon No. 4 while Southern California Petroleum Corp. is completing Van Nuys No. 1 and is coring for the oil sand in Maxwell No. 13.

Perforating jobs in Dr. Geo. G. Averill's No. 1 and Thos. Kelly & Sons' McMillan No. 1 have resulted in increasing the production of these small wells.

Newhall-Potrero Well Checks Low Structurally

Newhall-Potrero Oil Co.'s Ferguson No. 1, located in sec. 26,4-17 east of Barnsdall Oil Co. production in the Newhall-Potrero field, appears to be more than 1000 ft. lower structurally than the nearest completed well according to electric log correlations. Now drilling below 6350 ft., the well should top the first sand somewhere near the 7500 ft. level.

Barnsdall's last completion, Rancho San Francisco No. 11, was finished in the Third zone at 7392 ft. flowing 1100 bbls. of 33 gravity oil through a 30/64-in. bean. No. 12 is drilling at 6750 ft. and No. 13 is rigging up.

Turf Again Tests Potrero Deep Zone

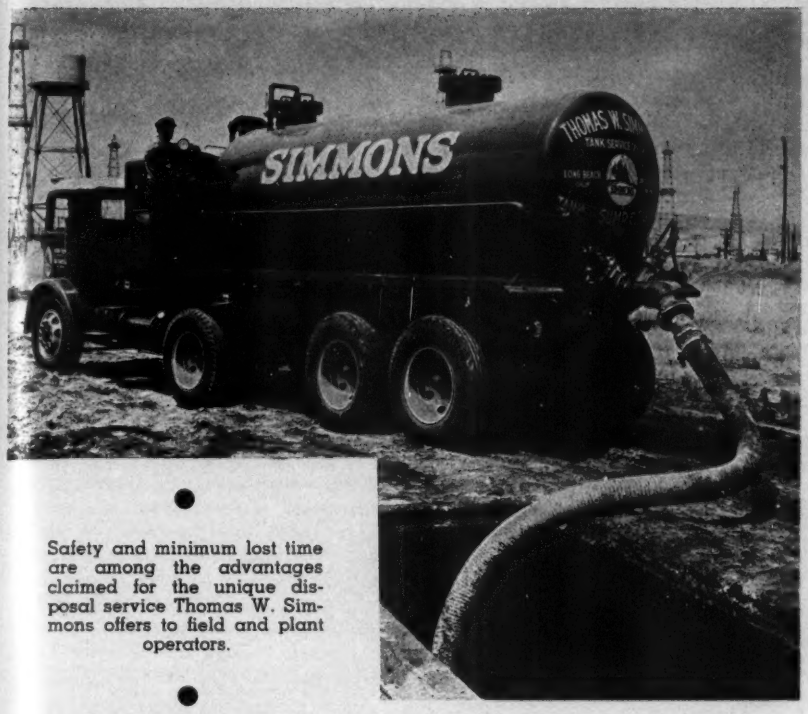
Turf Oil Co. has recompleted Turf Club No. 1 in the O'Dea zone at 8300 ft. after tests at 4800 ft. and 7200 ft. were definitely not commercial. Production is now 30 bbls. of 50 gravity oil and 375,000 cu. ft. of gas according to company estimates.

Basin Oil Co. brought in Potrero No. C-9 at 3750 ft. flowing 300 bbls. of 40 gravity oil and is drilling No. 8 at 3550 ft.

Tide Water Associated Oil Co. is pulling the old oil string in Cypress No. 3 preparatory to redrilling.

Asphalt Demand Higher in 1939

Asphalt demand, domestic and foreign, was 8 per cent larger in 1939 than in 1938, according to reports submitted to Secretary of the Interior Harold L. Ickes by the U. S. Bureau of Mines. To meet an increase of 364,100 tons in domestic demand (offset to a slight extent by a decline of 2,800 tons in export demand) petroleum refineries in the United States enlarged their output of asphalt 447,500 tons from 4,506,900 tons in 1938 to 4,954,400 tons in 1939. Stocks of asphalt at refineries were 59,600 tons higher on December 31, 1939 than on December 31, 1938, in contrast with a decrease of 67,000 tons in asphalt inventories during 1938.

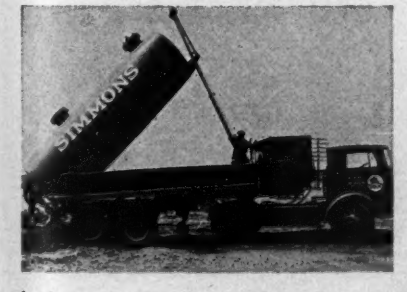


Safety and minimum lost time are among the advantages claimed for the unique disposal service Thomas W. Simmons offers to field and plant operators.

Waste Disposal Service For Field and Plants

An improved service which relieves oil producers, refinery operators, and natural gasoline plant supervisors of one of their most vexing problems—waste disposal, is announced by Thomas W. Simmons.

The service features a new vacuum intake and pressure discharge arrangement which is incorporated in the large tank truck illustrated here. The equipment is capable of handling the heaviest liquids, including those which have lost fluidity through evaporation or chemical change. The guaranteed service is claimed to be rapid, and the cleaning of tanks, sumps, pits, cooling tower basins, and the like is done by crews with years of experience in this disposal work. Full insurance is carried on all operations, notably a fire and explosion indemnity up to half a million dollars.



Methods and equipment used enable the disposal operators to clean cooling tower basins without disturbing overhead sprays, and to apply suction over distances up to 400 feet or more, eliminating shutdowns and reaching ordinarily inaccessible places with maximum safety. Where shutdown is unavoidable, the time loss is cut to one third, the service operators say. All tanks are tested for possible explosive contents before cleaning, and the workers are provided with masks, non sparking tools, and other necessary safety equipment.

The service is conducted on a moderate hourly rate charge basis or by contract. Operations of the organization, known as Thomas W. Simmons, Tank Service Division, are under the direction of R. L. Tilton, superintendent, 1220 W. 9th St., Long Beach who may be reached by telephoning 673-457 and 2209 in Redondo Beach.

Taft Chapter Barbecue Scheduled August 15

Under direction of Chet Beard, chairman, and a committee headed by Bert Hufford, the Taft Chapter of the California Natural Gasoline Association will hold its annual Barbecue at Capitola Park, Thursday afternoon and evening, August 15.

The program will feature golf at the Petroleum Club to be followed by a program of sports starting at 4 o'clock in the afternoon at Capitola Park. The funfest includes baseball and horseshoes with beer for members and guests. The barbecue dinner will be served at 6 o'clock. According to Chet Beard, the affair is open to all desiring to attend and reservations should be made by notifying Jack Cortelyou, Southern California Gas Co., P. O. Box T, Taft, Calif. A small green fee will be charged for golf while dinner will be served at $1.00. A door prize will be awarded. Large attendance by San Joaquin Valley and Los Angeles Basin men is anticipated.

Eleventh Annual Picnic For Axelson Co. Employes

The Eleventh Annual Axelson Employes Picnic was held July 27, at the American Legion Stadium at Montebello. Over 1500 Axelson employes and their families were in attendance during the course of the day. Games for young and old occupied the attention of those attending from 8:30 in the morning until 5:30 at night. The tantalizing strains of music of a good dance orchestra held most of the crowd until 11:00 p.m. According to the committee in charge of arrangements, this year's picnic was the largest and best attended to date.

Three generations of one family well known to the oil industry for nearly half a century are pictured above. Left to right: Jack Axelson; C. F. Axelson, retired; J. C. Axelson, president of Axelson Manufacturing Co.; G. A. Axelson, Chairman Board of Directors; D. F. Axelson, vice-president of Axelson Manufacturing Co.

Coastal District

Cal. Fuel Oil Finishes Arroyo Grande Pumper

California Fuel Oil Co. obtained an initial production estimated at 75 bbls. a day in Elberta No. 3 at Arroyo Grande according to reports from that city. Located in projected sec. 5,32-13 about three miles north of Pismo Beach, the well was drilled to 3330 ft., plugged to 3175 and completed with a 6⅝ in. casing cemented at 3070 ft. The 50% initial cut seems to be slowly cleaning up and the gravity should improve over its present 20 degrees.

Superior Oil Drills Huasna Valley Well

Superior Oil Co. is still drilling its Tar Springs Ranch No. 1 in Huasna Valley, the last reported depth being 4700 ft. Formation almost from the start has been hard brown Monterey shale with, in the lower part of the hole, a few oil showings in the fractures. The project is located in sec. 24,32-14.

Elwood Wildcat Test Finds Vaqueros Wet

A serious blow was dealt the chances of The Texas Co.'s finding production in Bishop No. 1A when a formation test of Vaqueros sand from 3300 ft. to 3360 ft. recovered 1400 ft. of gassy mud and salt water. Present plans call for deepening to the Sespe with a bare possibility that the hole may be even carried to the underlying Eocene.

Bishop No. 1A is located north of the State Highway and a little east of the Elwood field on a large block of leases which the company has held for some time.

Santa Rita Well Cores Hard Siltstone

Souza No. 1, Tide Water Associated Oil Co.'s Santa Rita Hills wildcat in sec. 12,6-33, is alternately drilling and coring in hard buff colored siltstone at 2140 ft. No basalt has been reported since passing through a streak at shallow depths.

Ventura County Activity Increases

Activity is increasing throughout Ventura county due, in part at least, to the lack of places in other sections of the state where independent operators may drill for relatively high gravity oil at reasonable cost.

Seeking an easterly extension of South Mountain production, California Securities Oil Co. is drilling Schiefferle No. 1, sec. 17,3-20, below 1500 ft., while north and west of Santa Paula in the Timber Canyon area, Seaport Oil Corp. is preparing to deepen the old J. W. Martin Arnett No. 3 and Norwood Oil Co. is getting ready to deepen the 1165 ft. Coronet No. 2. In the latter area, Per-Col Oil Co. is deepening Anlauf No. 6 in sec. 21,4-21.

Near Bardsdale, Westoil Corp. is drilling a shallow well with portable equipment on Elkins property in sec. 6,3-19 and in the adjoining sec. 5, Reed Elkins is below 300 ft. in another test.

R. T. Colter, Los Angeles operator, is planning to drill two 1000 ft. wells on the old Filmore Oil Co. property in Sespe Canyon. Several wells were completed on this lease over 30 years ago. Still in Sespe formation, Merchants Petroleum Co. is going ahead in Cochrane No. 8 below 2560 ft. Sandy streaks in the Sespe red beds have shown oil since the well started deepening from its formerly completed depth of 2000 ft.

East of Sespe in Hopper Canyon, J. A. English is preparing to pump Lankershim No. 3 after cementing 7-in. casing at 2240 ft. and landing a perforated liner on bottom at 3285 ft. Lankershim No. 2, completed earlier this year, initialed better than 100 bbls. a day of 34 gravity clean oil.

Irene Riley, drilling in sec. 19,4-19, has passed the 1100 ft. mark in Burson No. 1 and Rio Hondo Oil Co. has suspended operations temporarily in Cosby No. 1 in sec. 14.

O. C. Field Starts New Gato Ridge Well

O. C. Field Gasoline Corp. is again active in the Gato Ridge field with the drilling of a third well on Continental property. The new project, located in the southeast lease corner which is in sec. 4-8-32 at the northwesterly tip of production, is standing with 8⅝ in. casing cemented at 2230 ft.

No other well is active at present in this field where production is controlled by the Field company, Barnsdall Oil Co. and The Petrol Corp.

Union Pezzoni Drills Below 5700 Ft. Level

Union Oil Co. is still drilling Pezzoni No. 2 in an attempt to locate another field in the Santa Maria area. Last reported depth was 5700 ft. at which point the formation was not divulged, but, at 5500 ft., the well took a core of shale unofficially said to be Sisquoc.

Pezzoni No. 2 is located near Betteravia in projected sec. 33,10-35 in Santa Barbara county.

COASTAL COUNTIES WILDCATS

Area	Well	No.	Section	Depth	Status
Santa Barbara County					
Betteravia	Union Oil Co., Pezzoni	2	33, 10-35	5687	Drilling
Elwood	The Texas Co., Bishop	1	13, 4-29	3706	Drilling
Gaviota	Republic Pet. Co., Hollister	1	36, 5-33	3530	Abandoned
Santa Rita Hills	Tidewater Assoc. Oil., Souza	1	12, 6-33	2029	Drilling
Summerland	Barnato Group, The, Hyland	1	16, 4-26	3300	Idle
San Luis Obispo County					
Arroyo Grande	California Fuel Oil Co., Elberta	3	5, 32-13	3330	Pumping
Elkhorn	Calif. Pet. Prod., Irons	1	19, 10-24	2527	Idle
Huasna	Superior Oil Co., Tar Springs	1	24, 32-14	4693	Drilling
Ventura County					
Bardsdale	Elkins, Reed	1	5, 3-19	375	Idle
	Westoil Corp.	1	6, 3-19		Spudding w/ portable rig.
Conejo	Sulphur Springs Oil Co., Janss	1	33, 2-19	4526	Removing equipment
Ojai	Norwood Oil Co., Coronet	2	17, 4-21		Rigging up
	Norwood Oil Co., Coronet	3	17, 4-21		Grade
Santa Paula	Per-Col Oil Co., Anlauf	6	21, 4-21	1522	Drilling
Santa Susana	K. C. Oil Co., Marr	1	32, 3-17	1716	Idle
Sespe	English, L. A., Lankershim	3	13, 4-9	3285	Bailing
	G. E. Development Co.	7	13, 4-19	895	Idle
	Merchants Pet. Co., Cochrane	8	1, 4-20	2558	Drilling
	Riley, Irene Burson	1	18, 4-19	1200	Drilling
	Rio Hondo Oil Co., Cosby	1	14, 4-19	1695	Idle
South Mountain	Calif. Securities Oil Co., Schieferle	1	17, 3-20	1511	Drilling

Mallory No. 3 Fails On Test at 5325 Ft.

Union Oil Co. is deepening Mallory No. 3 after a production trial with the hole bottomed at 5325 ft. failed to result in a flow. The 315 ft. interval tested is believed to be lower Sisquoc or Santa Margarita and not the Monterey horizon which is the main objective of the well. The Mallory project is the most southerly well in the west half of sec. 27,10-34, erstwhile hot spot of the field.

Tide Water Finishes Big Avenue Producer

Tide Water Associated Oil Co. completed Ventura Land & Water No. 46 as one of Ventura Avenue's biggest producers, the initial gauge registering a 24 hour flow of 4480 bbls. of 31.6 gravity oil cutting 1.3%. Gas production was in excess of 4,000,000 cu. ft. Finished in the Class IV zone, at 10,180 ft., the well employs 410 ft. of formation.

Not far behind T.W.A.'s big well was Shell Oil Co.'s Taylor No. 122, which, flowing the interval 6500-7665 ft., produced at the rate of 3450 bbls. a day and 2,400,000 cu. ft. of gas.

With the major companies setting the pace with spectacular wells at opposite ends of the field, British American Oil Producing Co. did very well by itself in completing Barnard No. 1 near the center for 450 bbls. of clean oil.

W. A. Burns, Petrol Dies After Operation

William A. Burns, sales manager of Petrol Corp., died Aug. 9 in Alhambra, Calif. following an operation.

Mr. Burns, who was 52 years of age, was born in northern California and spent his entire business life in the oil business. He was associated with the Standard Oil Co. for many years and later became general sales manager for the Richfield Oil Co. In 1930 he became sales manager for the Petrol Corp. and held that position at the time of his death.

Stuart Remmel Recovers From Illness

The many friends of Stuart Remmel, California sales manager, Oil Tool Division, Byron Jackson Co., will be happy to learn that he has completely recovered from his recent illness.

"Cooperative Fuel Research Motor-Gasoline Survey, Winter 1939-1940", has just been issued by the Bureau of Mines as Report of Investigations 3524.

P. S. Magruder, retiring president, turns gavel over to L. V. Cassaday, new C. N. G. A. chief.

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Purchasing Personnel-ities

By Leo S. Busby
Associate Editor, Southwestern Purchasing Agent
SUNSET OIL CO.

A. V. Halbert

Last summer we had the good fortune to spend our vacation at the Grand Canyon. During a most interesting lecture tour, one of the rangers told his audience that whenever his duties permitted, he came every day to the canyon rim and reveled in the beautiful sunset. There wasn't a tourist present who did not envy him this inspiring daily experience.

Last week we met a gentleman who, perhaps, on this basis, is even more to be envied than the sunset loving ranger of the Grand Canyon. He is A. V. Halbert, purchasing agent of the Sunset Oil Company, whose every day is all Sunset from dawn to dark.

"Hal," as he is familiarly known, is a native of Richview, Illinois, and took up his earthly burdens a year or two before the turn of the century. When he was about twelve years old, Hal's folks had had enough of Illinois, and moved bag and baggage and Hal to the wilds of Houston, Texas. Here Hal attended grade and high schools.

And then came the war. Like so many other P. A.s Hal just had to get into one of those ill-fitting uniforms. He chose the Marine Corps and by the time he had contrived to acquire a uniform that really fit him, the war was over.

In 1919, Hal got himself a job with the Humble Oil Company, and for four years learned things about oil field accounting in a Humble way. The summer of 1923 found him in California working for the Pan American Petroleum Corporation where he went in for cost accounting. But this seems to have been a period of restlessness on Hal's part for he soon transferred his affections to the Julian Petroleum Corporation. For four years he worked here in the purchasing department, and then was made assistant purchasing agent. Hugh Grant was his boss at that time.

Having gone through a period of rapid change of employers, Hal settled down to serious business. But strangely enough, Hal's employer took up his restlessness. In 1926, the Julian Petroleum Corporation was reorganized and became the California Eastern Oil Company. Not content with this, in 1929 the name was again changed to Sunset Pacific Oil Company. It was about this time that Hal took over the duties of the P. A. Still not satisfied, the company once more enjoyed a change of letterhead, and in 1934 established itself as it is today—the Sunset Oil Company.

"Hal" Halbert is a good-looking, rugged individual with a rather shy, friendly smile that immediately sets his visitor at ease. Whether or not he turns this on for salesmen is something we wouldn't know. But anyway, he has it.

Among Hal's off-the-job diversions are deep-sea fishing and deer hunting, and recently he's been seen quite often roaming around the golf links. One of those rank amateurs, you know, who probably shoots in the eighties.

Hal is a popular member of the Los Angeles Purchasing Agents' Association, and his standing with his fellow employes is attested by the fact that he has been elected president of the Social Club of Sunset employes.

All in all, when a fellow is daily concerned with items like Sunset gasoline and Rainbow motor oil, he's bound to get some color on him. And "Hal" Halbert has it.

Export Licensing Machinery Explained

Export licensing machinery, by which oil companies should proceed in applying for export licenses covering aviation gasoline, aviation gasoline crude, high viscosity lubricating oils, and tetraethyl lead, was explained recently by the Federal Export Control Division. First step is to fill out an export license application, obtainable from any customs official. This application is sent to the State Department's Division of Control, which, if no doubt exists, will issue the license. Should there be question as to whether the license should be issued, it will be referred to Colonel R. L. Maxwell, Export Control Administrator, who, after study, will send confidential instructions on the action to be taken to the State Department Division of Control. All applications will be returned to the applicants bearing notations indicating whether they have granted, rejected, or there is no need for an export license. If an applicant is dissatisfied with the rejection of his application, he may file an appeal for reconsideration with the State Department Division of Control.

Aviation Gasoline Definition Clarified

While theoretically only aviation motor fuel and aviation lubricants come under the Export Control Act by reason of the President's proclamation of July 26, as a practical matter many other products are being held up by customs officials because of the wording of the definition of "aviation fuel" which includes the words "or any material from which by commercial distillation there can be separated more than 3 per cent of such gasoline". In order to clarify this matter for the collectors it is understood there will shortly be sent them by the State Department a statement that commercial distillation is:

> distillation through an ordinary bubble column and does not mean any more effective fractionation than would be obtained thereby. And that furthermore the small amount of material which could be obtainable by such distillation would have to be capable of being ethylized to 87 octane rating with not to exceed 3 c.c. per gallon of tetraethyl lead, before it would be included in the aviation gasoline definition.

It has been suggested that customs officials will release shipments of petroleum products if an affidavit is executed and attached to the export declaration stating that the products covered in that declaration are not within the scope of the Export Control Act.

Porter No. 22 Completed By Tide Water Associated

Tide Water Associated Oil Co. scored again in the Aliso Canyon field by completing Porter No. 22 as an 800 bbl. flowing well. Located in the third line of wells south of the Porter property boundary, which at present is the northerly limit of production, No. 22 produces a 300 ft. interval below the shoe of the 8⅝ in. casing cemented at 4825 ft.

Close on the heels of No. 22 is No. 14, now coring at 4850 ft. after cementing casing at 4770 ft.

Tide Water is preparing to drill three more on the Porter lease; Nos. 4, 16 and 17.

The Effect of Formation on Loss of Fluid From Drilling Muds

A. P. I. Meeting
Mid-Year, 1940

H. T. Byck*

Introduction

One of the factors which is of interest in the analysis of the plastering behavior of rotary-drilling muds and the application of laboratory data to field practice is the effect of the permeability of the formation penetrated during drilling upon liquid loss and theath thickness.

There is abundant evidence in the literature to show that under normal conditions it is the water of the mud, rather than whole mud, which penetrates the formation. However, there has been a prevalent belief that water loss increases formation permeability, and that lost circulation (loss of whole-mud fluid) takes place when the formation permeability reaches some indefinite high value. Circulation losses have been discussed at some length elsewhere;[1a] and this aspect of the problem will not be considered in this paper, which is confined to the region where filteration occurs without mud loss.

It now is conceded generally that the relative plastering behavior of muds in the well is represented adequately by laboratory filteration tests made with filter paper as the filter medium—of course, with due regard to the effect of temperature; and evidence has been presented[2] to show that the plastering behavior of a given mud is very nearly the same when filter paper is used as the filter medium as when sintered alundum filter discs of a permeability of approximately 500 md are used.

In several recent papers dealing with the plastering properties of buds from a theoretical viewpoint,[3 4 5] it is inferred that the rock permeability has little or no effect upon the plastering, but no experimental evidence is presented in this connection. When a single filter medium is used in evaluating the plastering properties of muds, the permeability of the mud sheath has been shown to be the most important factor in controlling the rate of water loss to the formation. The permeability of the sheath (or its reciprocal sheath-resistance coefficient) is a function alone of characteristics of the mud—its colloid content, degree of dispersion or flocculation, solids content, particle size, etc.

In order to establish experimentally the influence of formation permeability upon water loss and sheath thickness, a large number of plastering experiments were made with representative California muds on consolidated cores covering a wide range of permeabilities.

It frequently has been assumed that the loss of liquid from drilling mud increases with increased permeability of the formation penetrated. Several recent papers, which present a theoretical analysis of the filtration of muds, point out that this factor should have little or no influence upon mud plastering. The present paper presents extensive experimental data to check this important point.

In order to establish the influence of this property of the formation upon water loss the sheath thickness, plastering experiments were made, with a number of representative California muds, on a high-pressure circulating filter press using a series of real and synthetic consolidated cores whose permeabilities ranged from 10 to 14,600 md.†

As a result of these experiments, it is concluded that, within these limits in unfractured consolidated cores, the plastering behavior is, in fact, dependent only upon properties of the mud fluid and, hence, independent of the formation permeability.

Experimental Work

The experimental data were obtained on a large mudding-off machine patterned after the Jones and Babson[6] circulating filter press, with the modified core holder for full-size cylindrical consolidated cores, described in an earlier publication.[7] The mud under pressure was circulated under the cylindrical surface of the cores, the mud cake building up on this face, while the filterate penetrated radially through the core.

Because it was not possible to obtain oil-field cores of sufficiently wide permeability range and suitable mechanical strength for this study, it was decided to use vitreous-bonded aloxite[8] abrasive wheels to represent the formations. These wheels are obtainable in various grits or grain sizes, and the permeabilities of different wheels from the same batch number were found to be closely the same. The nature of the bond precludes any alteration in permeability due to swelling or dissolution during the plastering tests.

In order to establish the identical behavior of these aloxite cores and oil-field cores toward the muds, several oil-field cores of low and intermediate permeability were included in one series of tests. Results of the runs on these cores were identical with those on synthetic cores, within experimental error; and, therefore, it is believed that the results presented herein can be interpreted as representing the behavior of formations such as those through which an oil well may be drilled.

In the experiments with various mud fluids, the first series with Ventura mud differs from the subsequent ones in that this first set was used to establish the reproducibility of the plastering test, and to show that the aloxite cores were similar to oil-field cores for the purpose at hand. In subsequent series aloxite cores alone were used, and in a few cases single runs were made. In several cases duplicate runs reported here were made on different days, but in general the series with a single mud was completed in one day from a single large charge of mud to the reservoir of the appartus.

The muds used in this work were standardized at 75 lb. per cu. ft. (density =1.200), and were passed through a 70-mesh screen before they were charged to the apparatus. Viscosity and density of the mud were measured before and after the run to assure constancy of the mud properties. No chemical treatment for viscosity reduction of the muds was applied, well-aged muds made with tap water being used.

The permeability of the cores was

* Shell Development Co., Emeryville, Calif.

[1] Figures refer to bibliography on p. 36.

† Millidarcys.

TABLE 1
Comparison of Oil-Field and Aloxite Cores—Ventura Mud

Premeability of core, millidarcys	322				450		3,000				6,300		14,600		600		40	10
Nature of core	Aloxite Run No.				Aloxite Run No.		Aloxite Run No.				Aloxite Run No.		Aloxite Run No.		Oil-field Core Run No.		Oil-field Core Run No.	Oil-field Core Run No.
	1	2	3	4	1	2	1	2	3	4	1	2	1	2	1	2	1	1	2
Filtrate volume, ml in 40 min	50.5	46.0	46.0	47.5	45.0	46.0	43.5	45.0	45.0	45.0	45.0	48.0	46.5	48.5	224	225	98.0	125.5	122
Area of core, cc		32.7			31.0			30.9				29.3		31.6		152		65.5	76.13
Throughput corrected to area to 322-md core, ml	50.5	46.0	46.0	47.5	47.5	48.5	46.0	47.6	47.6	47.6	50.3	53.6	49.7	50.2	48.2	48.3	49.0	53.6	52.4
Average of corrected values, ml		47.5			48.0			47.2				51.9		49.9		48.3		49.0	53.0
Sheath thickness, millimeters	3.8	4.0	4.9	4.1	4.0	4.0	3.8	3.8	4.0	4.0	4.0	4.1	4.3	4.2	3.8	4.0	3.8	4.0	4.9

Mud weight =75.0 lb. per cu. ft. Circulation at 500 psi. Room temperature.

TABLE 2
Summary Data of Various Muds on Series of Cores

Permeability and Nature of Core	Average Water Throughput at End of 40 Min (Milliliters)				
	Mojave	Ventura	Coalinga	Palos Verdes	Lobec
322-md aloxite	69.0	47.5	23.0	22.0	15.2
450-md aloxite	75.4	48.0	25.3	23.2	13.8
3,000-md aloxite	69.4	47.2	22.0	23.3	13.2
6,300-md aloxite	77.4	1.9	25.7	22.1	13.9
14,600-md aloxite	74.5	49.9	25.5	23.3	17.3
600-md oil-field	....	48.3	....	....	....
40-md oil-field	....	49.0	....	....	....
10-md oil-field	....	53.0	....	....	....
Average of runs on all cores	73.5	49.0	24.3	22.6	14.6
Average sheath thickness, millimeters	5.28	3.90	2.85	2.83	2.01
Permeability of sheath, darcys	$7.42(10^{-4})$	$3.43(10^{-4})$	$1.28(10^{-4})$	$1.05(10^{-4})$	$0.46(10^{-4})$

measured acccording to standard methods, using dry air as the flowing medium.

As is usual in this type of experiment, the water throughout was measured at 1-min. intervals for the first 5 min., and at 5-min. intervals for the remainder of the run—40 min. The thickness of the sheath was determined after the core holder had been removed from the apparatus, and after any loosely adhering mud had been washed off with a gentle stream of water.

All experiments were made at a mud pressure of 500 psi—this representing average well conditions—with circulation of the mud over the core face. Radial flow of the filterate through the core prevailed.

Inasmuch as the cores were of the same diameter (3 in.), but of different lengths, the measured water throughout in each case was corrected by a factor representing the ratio of the exposed area of the 322-md. core (taken as standard) to that of the core under consideration. These reduced values are used in analyzing the results.

The exceptionally good agreement between the aloxite and oil-field cores, shown in Table 1, is considered sufficient evidence of the similarity in behavior of these two types of core materal toward mud fluids. This agreement between the filterate values for different cores reduced to a common area is more striking in view of the fact that the actual throughputs using oil-field cores are from 2 to almost 5 times the actual throughput with the 322-md. aloxite core.

The permeability of the mud sheath was calculated in every case from data obtained during the run, as follows: The area (A) of the sheath was taken as the exposed area of the core; the thickness of the sheath (X) was measured at the end of the run, as mentioned previously. The pressure drop across the sheath was taken as the applied mud pressure, and it was assumed that pure water was the flowing medium, with viscosity taken as 0.88 centipoise (25.5 deg. C.). The rate of flow of water was taken as the rate during the last 5 min. of the plastering test. Because the total throughput in this interval was small, was assumed that the sheath thickness did not increase appreciably; and, hence, the thickness at the end of the run is believed to be as suitable a value as can be obtained.

Linear flow through the sheath was assumed, as the thickness of the sheath is small compared to its radius of curvature; it is, in effect, a flat plate.

Substitution of the above data in the familiar expression of Darcy's law permits the calculation of the sheath permeability, as, for example, the following calculation for one run with Ventura mud:

Area (A) = 32.7 sq cm
Thickness (X) = 0.399 cm

Rate of flow through the sheath, $\frac{dQ}{dt}$ = 3.18 ml per 5 min = 0.0106 ml per sec

Pressure difference ΔP = 500 psi = 34 atmospheres

$$k = \frac{\mu \cdot \frac{dQ}{dt} \cdot X}{A \Delta P} = \frac{(0.88)\ (0.0106)\ (0.399)}{(32.7)\ (34)} = 0.00000343 = 3.43(10^{-4}) \text{ darcys.}$$

Discussion of Experimental Results

The theoretical considerations earlier referred to in this paper, which lead to the conclusion that formation permeability is without appreciable effect upon the plastering properties of muds, have been confirmed experimentally.

Representative muds without chemical or other treatment are found to give the same water loss and mud-sheath thickness on cores of widely different permeabilities.

The sheath permeability calculated for each experiment (see Table 2) was found to be independent of, and several orders of 10 smaller than, the core permeability. Inasmuch as, in the theoretical expressions for plastering, the rock permeability enters this one term as the ratio of filter cake to core permeability, it is seen that this term becomes vanishingly small for the conditions of the present set of experiments.

The range of formation permeabilities over which normal mud plastering, rather than lost circulation, takes place has been extended to cover most of the formations penetrated during drilling. Numerous experiments with unconsolidated sands, reported elsewhere[9] and confirmed in these laboratories, indicate that with these media cement slurries cannot be forced into the pores for any appreciable distance.

Such results cast grave doubt upon the ability to force either cement slurries or whole mud into homogenous formations; and it appears necessary to conclude that the appearance of mud or cement in wells adjacent to the one under consideration can take place only through crevices, channels, fractures, or caverns, or through formations of extraordinarily high permeability—in fact, only through formations in which the pore sizes are so large as to cause the concept of permeability to lose its generally accepted meaning.

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[1]Roy A. Silent, "Circulation Losses," *Drilling and Production Practice*, 60, American Petroleum Institute, New York (1936).

[2]H. D. Larsen, "Determining the Filteration Characteristics of Drilling Mud," *Petroleum Engr.* 10 [2] 56 (1938).

[3]W. N. Arnquist, "Note on Filtering Action of Porous Media," *J. Applied Phys.* (U.S.S.R.) 8, 363 (1937).

[4]M. Williams and G. E. Cannon, "The Evaluation of Filteration Properties of Drilling Muds," *Oil Weekly* 90 [2] 25, 28, 30, 32 (1938).

[5]M. Williams, "Radial Filteration of Drilling Muds," *Am. Inst. Mining Met. Engrs. Tech. Pub. No.* 1112 (1939).

[6]P. H. Jones and E. C. Babson, "Evaluation of Rotary Drilling Muds," *Drilling and Production Practice*, 22 (1935).

[7]H. T. Byck, "Effect of Temperature on the Plastering Properties and Viscosity of Rotary Drilling Muds," *Am. Inst. Mining Met. Engrs. Tech. Pub. No.* 1116; (*Petroleum Technology*) Nov. (1939).

[8]Obtained from the Carborundum Co., Niagara Falls, N. Y.

[9]Paul D. Torrey, "Selective Exclusion of Fluids from Wells," Table 3, *Drilling and Production Practice*, 212 (1939).

Latin America Business Discussed

The Petroleum Accountants' Society, consisting of representatives from the oil industry in California will hold a luncheon meeeting Aug. 15, at the University Club, 614 S. Hope St., Los Angeles. The speaker on this occasion will be Mr. G. A. Glasscock, Foreign Trade Counsel of the Los Angeles Chamber of Commerce. He will address the members and guests on "The Struggle for Business in Latin America." As the subject is a live one, a large attendance is expected.

New inner tube is capable of sealing punctures on moving wheels without great loss of tire pressure.

Aviation Gasoline Export Regulations May Be Modified

According to recent Washington advices, proposals are afoot to modify aviation gasoline export license regulations so they will not "impinge too heavily" on the oil industry. It is rumored that the changes, if authorized, would cover certain unforeseen situations growing out of the ban on shipment to other western hemisphere consumers of aviation gasoline, aviation gasoline crudes, high viscosity lubricating oils and tetraethyl lead. Present division studies are represented as not contemplating any such sweeping modification as a resumption of aviation gasoline exports to all world points save those where it might fall into the hands of belligerent nations.

Link-Belt Announces Improved Mud Screen

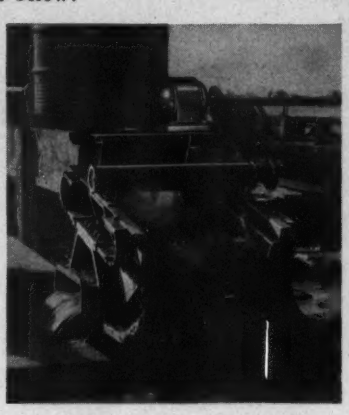
Announcement of improvements in its vibrating screen equipment for reconditioning the drill mud for shallow, medium and deep oil well drilling work, is made by Link-Belt Co. The new, improved Link-Belt mud screens include—

1. A Model 40, NRM-124 Screen, measuring 24-in. wide x 48-in. long,

2. A Model 40, NRM-145 Screen, measuring 48-in. wide x 60-in. long, and

3. An entirely unique dual unit, consisting of two NRM-124 screens, 24-in. x 48-in. size, mounted on skids as one unit of operation, and having but one mud-inlet chute and one mud-collecting tank. Each screen panel is vibrated independently, although driven from a single source of power. Either a 2-h.p. electric motor or 5-h.p. steam turbine is ample for the purpose.

Some of the advantages embodied in the new improved screens, are enumerated below:



At a 10,535-ft. hole this NRM-124 Link-Belt 24-in. wide x 48-in. long vibrating screen is handling the entire mud circulation, with slush pumps compounded.

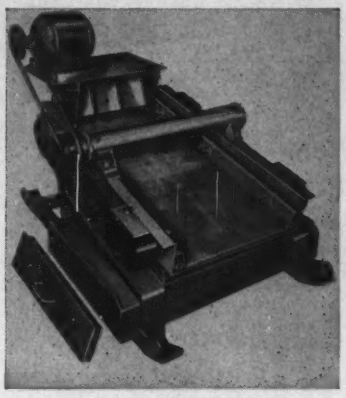
Little Power Required. 1½-h.p. electric motor for a 24-in. x 48-in. screen; 2-h.p. for the 48-in. x 60-in. An 1800-r.p.m. splash-proof electric motor is recommended, but a steam turbine, or gas or diesel engine, may be used.

Swinging inlet gates deflect the mud downward against a perforated bottom plate, assuring good distribution and control of flow, with little wear on screen cloth and effective utilization of the entire screening area. When out of service, the gates can be tightly closed to stop the flow of mud.

Fine-mesh stainless steel screen cloth rejects the sand and shale as well as larger cuttings, thoroughly cleaning the mud. Cloth is mounted on acid-oil-and-heat-resisting Neoprene tubes for maximum life, and is easy to replace. An effective means of sealing is provided, preventing entrance of cuttings into trough for the cleaned mud.

The vibrator unit rotates in anti-friction self-aligning roller bearings, and is enclosed in a single, dirt-and-weather-proof housing.

The dual hook-up, using two 24-in. x 48-in. standard screens mounted side by side as a single operating unit, Link-Belt engineers say, has the following advantages over the use of a single 48-in. x 60-in. size screen:



The new, improved Link-Belt Mud Screen for oil-well drilling work. A Model 40, NRM-124 screen, having a 24-in. wide x 48-in. long screening deck, is illustrated.

1. Greater capacity for a given mesh of screen cloth.

2. Permits operation of one screen only, when it is desired to handle reduced capacities.

3. Provides a stand-by screen in case of repairs to other screen.

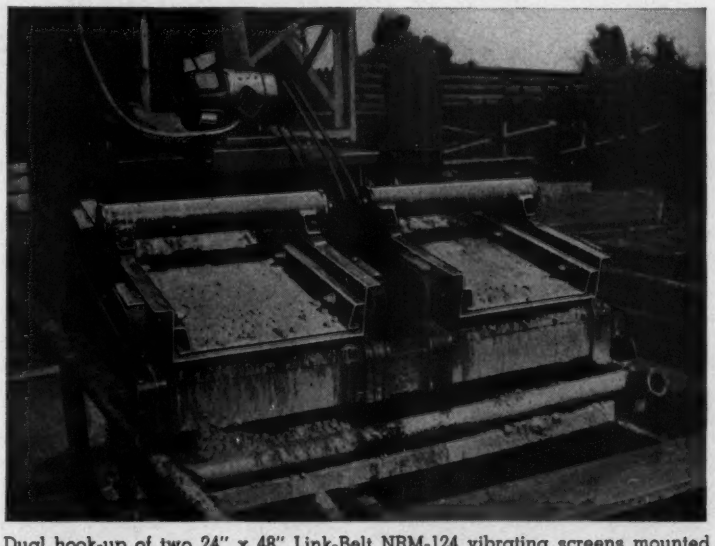
4. The individual small screen boxes are capable of considerably longer life, with less maintenance, than larger boxes, and are less susceptible to breakage from rough field usage.

5. The smaller-size screen cloths lend themselves to better tensioning, which can be held—with less likelihood of loosening—maintaining greater screening effectiveness and giving much longer life.

6. Will accommodate finer-mesh screen cloths, which give longer life, with less replacement cost.

7. Occupies less head room.

8. Permits greater amplitude of vibration without trouble, for more effectiveness when handling heavy, viscuous mud.



Dual hook-up of two 24" x 48" Link-Belt NRM-124 vibrating screens mounted on skids as one unit, with unitized mud collecting tank and inlet chute. One motor drives the two screens independently.

Gasoline tax refunds have been decreased during the last year in California, in spite of the fact that gasoline tax collections have materially increased.

Federal Power Commission has found that it has no jurisdiction over the sale of natural gas by producers who are not otherwise engaged in the natural gas industry.

Axelson Rods in Deepest Pumping Well

The J. E. Pettijohn Co., El Rey Westmorland No. 1, at Western and Imperial Boulevards in Los Angeles, is pumping from 8540 ft. level to produce 60 bbls. per day for a world's depth record for pumping wells.

Through a string of 2½" upset tubing the 1½" bore Axelson pump produced 360 barrels of fluid on a 24-hour test. A 66" stroke was used, 18 strokes per minute. The fluid level dropped from 6000 ft. to bottom and the speed was reduced to 16 strokes per minute and the stroke to 42" for the production of 60 barrels. The rod string on this hook-up is Axelson No. 59, 30-ft. rods. 1780 ft. of 1-in. rods and 4800 ft. of ¾-in. rods connected by Axelson hardened and ground couplings. The Axelson 1½" in. x 20 ft. A.P.I. chromo polished rod carries an approximate peak load of 27,000 lbs. This represents an approximate stress of 34,400 pounds per square inch on the top 1-in. sucker rod. The approximate stress range is 17,370 pounds. The pump used is a 2½ in. x 1½ in. x 15 ft. x 18 ft. Axelson R.S.L. stationary bottom lock pump complete with 60" chromium plated Perry, Barnwell plunger with hard cast iron liners, Axloy seats and balls and anchor hold down.

It is reported to be the deepest pumping well in the world pumping off bottom and the hook-up of pump and rods was designed especially to meet the unusual conditions of this well.

Lubricated Plug Valve Tested to 15,000 Lbs.

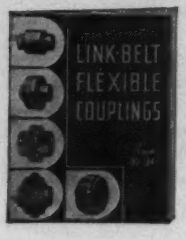
Development of a lubricated plug valve capable of handling a working pressure of 7500 lbs. and tested to 15,000 lbs. is announced by Merco Nordstrom Valve Co.

It is made of special alloy steel with both plug and interior contact surfaces faced with Merchrome, the latest development in hard-facing.

This is believed to be the heaviest duty plug valve ever manufactured and is the result of several years of development work in the research laboratories of the manufacturer. It was principally developed for recycling service in gas and oil fields, but has other applications in refineries and in processes where tremendous pressures are carried. Extremely heavy flanges and side walls are incorporated to prevent body distortion.

Further details may be obtained from Merco Nordstrom Valve Co., 400 Lexington Ave., Pittsburgh, Pa.

Flexible Coupling Book Announced by Link-Belt



A new 12-page illustrated Catalog No. 1845 has been published by Link-Belt Co., 307 North Michigan Avenue, Chicago, on the company's complete line of flexible couplings.

The book contains complete price and dimensional data on Types A, B, and RC couplings, together with information on revolving and stationary casings for the RC type. The most recent addition to the line—a horizontally-split aluminum casing—is described fully. Simple selection tables and instructions for installation and lubrication make the book a valuable addition to catalog libraries of power transmission engineers.

A copy of the book will be sent to any interested reader upon request.

John Zink Traveling Display of Burners, Applications

The John Zink traveling exhibit of heating boiler burners, commercial conversion burners, and floor furnaces is touring the Southwest as far North as Kansas City and as far East as Chattanooga.

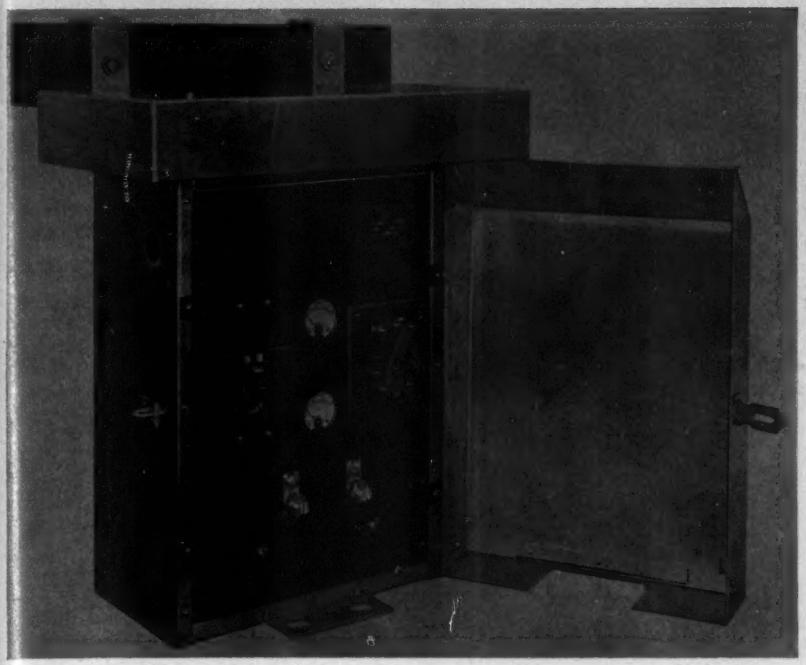
This exhibit takes to the consumer and the dealers a comprehensive display

of the above types of burners. A sales engineer of the John Zink Co., Tulsa, Okla., accompanies the exhibit to demonstrate the various burners and their applications.

Due to size and weight none of the John Zink refinery and industrial burners are included in the display.

Brea Canyon Well

Fullerton Oil Co. is drilling the only active well in the old Brea Canyon field. Brea Canyon No. 26, as the project is called, is located near the west end and is expected to be completed near the 3200 ft. level where No. 25 was finished last April pumping 100 bbls. a day of 22 gravity clean oil.



Rexselen Cathodic Corrosion-Eliminator

The Rexselen Cathodic Corrosion-Eliminator is a complete rectifier and control assembly especially designed for cathodic pipe protection and embodies Selenium Rectifier Stacks, according to the makers.

The Rexselen Cathodic Corrosion-Eliminators require exceptionally little maintenance throughout their long service life. Because of stability of output, visits by an attendant are necessary only to determine and adjust current to new requirements, the designers say.

The efficiency of Rexselen Eliminators is very high under all practical conditions of loading, power efficiency ranging between 60 and 80 per cent depending upon the voltage and current output. An important feature is that high efficiency is sustained throughout the long life of the rectifiers as only a slight increase in forward resistance occurs during the first ten thousand hours of operation, after which no change takes place, it is claimed.

Rexselen Eliminators have no moving parts to wear out for the rectifiers consist of rigid discs and no cooling fans or blowers are necessary.

The Type CB Rexselen Corrosion-Eliminator illustrated is rated at 8 volts, 50 amperes d-c and is for operation on single-phase a-c supply. It measures only 28 inches high, 21 inches wide, and 15 inches deep, and weighs only 110 pounds. Other Type CB units are avaliable in higher and lower current capacities from 20 to 200 amperes and also in higher voltage ratings. The 8-volt units can be adjusted by means of transformer taps to a d-c output as low as .7 volt. The higher voltage units can be adjusted to less than one-half full-rated voltage.

The control panel of the Eliminator is equipped with a-c magnetic circuit breaker with time delay, ammeter and voltmeter, tap changing link switch, and solderless d-c terminals. The new Type CB Eliminators are equipped with the Thermotrol, an exclusive device for the protection of the unit against damage due to overloading or operation in abnormally high air temperatures. The rectifier and auxiliary equipment are built as a unit and mounted in a ventilated weatherproof steel cabinet designed for out-of-door mounting on a pole or wall. Indoor models can also be furnished by Electrical Facilities, Inc., 4224 Holden St., Oakland, Calif., the manufacturers.

L. A. Cranson Heads Petroleum Safety Board

L. A. Cranson, vice-president of the Honolulu Oil Co., was elected president of the California Petroleum Safety Board at its recent annual meeting. The California Petroleum Safety Board is composed of a group of California independent oil producers who, for the past two and a half years, have conducted a cooperative safety education program under the direction of A. J. Martinson.

Vice-presidents elected at the meeting were W. C. Whaley, Barnsdall Oil Co.; L. L. Aubert, Bankline Oil Co.; A. S. Hayes, Bell and Loffland. R. W. Metcalf, Signal Oil Co. was elected treasurer and Paul Stanley, Barnsdall Oil Co., was made secretary. Mr. Cranson, together with the vice-presidents and treasurer constitute the executive committee, and the board of directors and treasurer constitute the executive committee, and the board of directors was enlarged to include a representative of each member company.

During the time of the Safety Board's operations, accidents to employes of member companies have materially decreased, the over-all figures being considerably under those of the oil industry as a whole. In addition, there have been two reductions in workmen's compensation insurance rates for the oil industry, which have noticeably reduced general operating expenses.

You are reading the Pacific Coast oil men's home paper.

Pittsburgh Equitable—Merco Nordstrom Install Field Service Truck in Midwest

As a service and convenience to their many customers in the Midwest, the Pittsburgh Equitable Meter Co. and subsidiary, the Merco Nordstrom Valve Co., now have in operation, from their Chicago office, a completely equipped field service truck.

This truck is fitted with the necessary tools, lubricants and test apparatus to handle properly the field maintenance of EMCO and Nordstrom products. It is in charge of Paul Payton, service engineer, who is thoroughly trained in factory methods and maintenance procedure on all the companies' products.

Captain A. E. Higgins, sales manager, also announced that a similar unit has been ordered for use in the Mid-Continent area, to operate out of the Tulsa office and that additional service trucks would be placed in service in the near future in other sections of the country.

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Oil Men's Calendar

American Society of Mechanical Engineers—Los Angeles Section—Meets 2nd Thursday Each Month—Barker Bros. Bldg., Los Angeles. Dinner at 6:30 (Optional).

Calif. Natural Gasoline Association. **Los Angeles Chapter**—Meets 1st Thursday Each Month, Barker Bros. Bldg., Los Angeles—Dinner at 6:00 (Optional). **Taft Chapter**—Meets Third Thursday Each Month.

September

18-19-20—Annual Convention of the Pacific Coast Gas Ass'n., Hotel Del Coronado, Coronado, Calif.

October

7-12—Annual Convention of American Gas Ass'n., Atlantic City, N. J.

Tide Water Awards Pipe Line Contract

Awarding of a contract for reconditioning sections of its San Joaquin Valley pipe line between Silaxo and Trent stations was announced today by Tide Water Associated Oil Co. Reconditioning work is to be undertaken over a total of 21 miles of the line at a cost estimated to be $125,000.

The pipe line, 280 miles in length, with its twenty-two pump stations transports Associated's San Joaquin Valley crude oil production to the company's refinery at Avon, California.

The work being undertaken at this time is another step in the program of progressive reconditioning and converting to a welded line the old line constructed of screwed pipe about thirty years ago. Those sections now located on bents above ground, after reconditioning, are to be buried. It is expected that the work on the line will be completed early in the Fall.

California Crude Oil Production

Three Weeks Ended August 2, 1940

	August Daily Quota	Average Daily Production	Excess
San Joaquin Valley			
Beiridge—North	11,106	10,110	*996
Beiridge—South	2,126	2,149	23
Buena Vista	15,780	15,390	*390
Canal	5,543	5,562	19
Coalinga-E. (Eocene)	18,662	18,123	*539
Coalinga—East-West	14,690	10,194	*4,496
Cole's Levee	6,909	7,353	444
Edison	2,234	2,178	*56
Elk Hills	6,803	11,977	5,174
Fruitvale	5,639	5,265	*374
Greeley	4,601	4,034	*567
Kern Front	7,051	5,642	*1,409
Kern River	6,860	3,987	*2,873
Kettleman No. Dome	33,232	47,384	14,152
Lost Hills	3,890	3,569	*321
McKittrick	3,870	3,635	*235
Midway	36,078	29,856	*6,222
Mount Poso	8,949	8,851	*98
Mountain View	6,987	7,640	653
Rio Bravo	9,128	9,375	247
Round Mt. and Coffee Canyon	6,965	6,683	*282
Ten Section	9,967	9,441	*526
Wasco	1,633	1,582	*51
Other Fields	4,027	3,745	*282
TOTAL	232,739	233,734	995
Coastal Counties			
Elwood	3,313	3,514	201
Rincon	2,755	4,549	1,794
Santa Maria	5,820	3,703	*2,117
Gato Ridge	2,108	4,419	2,311
Santa Maria Valley	16,079	17,940	1,861
Santa Paula-Newhall	6,001	6,372	371
Ventura Avenue	32,150	34,867	2,717
Other Fields	5,256	5,019	*237
TOTAL	73,482	80,383	6,901
Los Angeles Basin			
Alamitos-Seal Beach	6,884	6,622	*262
Brea-Olinda	7,914	5,664	*2,250
Coyote—East	3,856	3,661	*195
Coyote—West	9,385	7,890	*1,495
Domingues	17,661	21,099	3,438
El Segundo	2,010	2,241	231
Huntington Beach—New and Old	21,987	24,532	2,545
Inglewood	11,616	12,203	587
Long Beach	37,830	42,974	5,144
Montebello	5,633	3,760	*1,873
Montebello-West End	17,131	15,352	*1,779
Playa del Rey	3,869	3,918	49
Richfield	6,833	8,248	1,415
Rosecrans-Athens	8,317	10,595	2,278
Santa Fe Springs	23,166	26,224	3,058
Torrance	5,126	4,872	*254
Torrance "34" and "D & B"	5,597	6,028	431
Wilmington	77,756	83,933	6,177
Other Fields	4,505	4,179	*326
TOTAL	277,076	293,995	16,919
STATE TOTAL	583,297	608,112	24,815

*—Shortage.